Railway Age

Vol. 79, No. 16 October 17, 1925 Table of Contents Appears on Page 5 of Advertising Section

Mechanical Department Interest in Time Table Revisions

THE revision of time tables is admittedly an important function of the traffic and operating departments. The far reaching effects of these revisions is not always apparent, however. As an illustration the influence of time table revisions on locomotive performance was pointed out by L. K. Sillcox, general superintendent of motive power of the Chicago, Milwaukee & St. Paul, in a recent address before the annual master mechanic's staff meeting of that road. Among other things Mr. Sillcox said, "When a reprint of the time table is made, the revision of the engine assignments is very complicated, and even one alteration in the timing of a train may result in many engine arrangements being revised, the engines being so intermixed in their assignments. Care has also to be taken in allowing reasonable margins between trips for necessary engine purposes; terminal facilities and the class of coal in use having considerable bearing on this point." Mr. Sillcox further emphasized the fact that close co-operation in the preparation of time tables will result in less waste of time, provide proper balances to eliminate as far as possible the practice of running power light, and, what is probably most important of all, assure the correct spacing between trains. High speed train service is to be desired, but when speeds are pushed beyond certain limits excessive fuel consumption and late trains are the result. Plainly, therefore, when time tables are being changed, it is not only advisable to make due allowance for loading time at intermediate stations, grades and speed restrictions between stations, but the effect of the changes on fuel consumption, locomotive utilization and possible undue punishment of the boilers and machinery should also be considered.

Playing the Game at Grade Crossings

AN analysis of recent accidents at highway grade crossings, on one of the large western roads reveals rather startling evidence of the degree of carelessness displayed by drivers of motor vehicles. In one month 14 automobiles ran into trains and in three of these instances the drivers picked out trains that were standing at the crossings. During the same period there were 16 accidents wherein automobiles were struck by trains. In other words, nearly half of the accidents were due to the grossest negligence on the part of the drivers. In addition, it is fair to assume that many, if not all, of the other 16 mishaps in which vehicles were struck by trains, were attributable to a large extent to the same recklessness. Trying to beat the train to the crossing was the reason most frequently given for not stopping. Possibly some rules and regulations governing contestants in this present day sport might help to raise its standards in the eyes of reckless drivers, but we are inclined to believe that such attempts should be discouraged immediately to protect the best interests of the public as a whole. Among the other reasons given for not stopping were: Speed too great; defective brakes; failed to look; misjudged distance; and driving under the influence of liquor. At one crossing protected by gates an automobile pulled around a truck which had stopped and drove through the gates into the side of a train. In a similar accident witnessed by the mayor of the town a driver, although properly flagged, kept going until he hit the train. In an effort to prevent future mishaps of this nature, the mayor immediately invested the flagman with police powers and authorized him to arrest all drivers failing to stop when flagged. Traffic officers command obedience and while it may seem strange that it should be necessary to arrest automobile drivers to protect their own lives, this is one solution suggested by the foregoing record.

Wherein the Railroads Are Fortunate

SOME psychologists and sociologists who have viewed critically the developments in industry over a number of decades have been alarmed at the effect which growing machine efficiency may have on the character of the population of the country. What is the mental effect on a man of standing day in and day out watching a machine and repeating over and over again some simple, clock-like operation—or of standing in a line and tightening up the same nut on automobiles as they pass him in an endless procession? Will he be mentally alert away from work, or will his actions in his hours to himself be dictated by the same sort of habitual formulas which govern them when he is on duty? In short, is there danger that we may be developing a group of brainless, efficient automatons? The question cannot be definitely answered; there is not enough evidence one way or another as yet. Meantime, however, it should be a source of considerable satisfaction to railroad men that there is little danger that the railroads will develop many such automatons. Most railroad work simply cannot be subdivided in such a fashion that machines, which may be operated by attendants with no brains, can carry on the business of transportation. With the progress in machines and methods which all but eliminate the need for intelligent workers in some other industries, the railroads should tend to stand out more and more as offering an attractive field for the employment of workmen who want to be classed as somewhat more intelligent than the machines with which they work. There is a compensation in interesting work which for intelligent persons in the long run more than offsets slightly greater earnings elsewhere. Even within the ranks of the railroad this holds true. There are, for instance, many railroad employees whose earnings average larger than those of the section foremen—yet few have the freedom of initiative which the section foreman has. Few have a well defined piece of property placed in their hands on which they can work and on which the results of their efforts are so plainly evident. A recent issue of

the Pennsylvania News (Eastern Region) tells of a section which has been "in one family" for 53 years. The father had it in his charge for 43 years and the son has had it since and, we are told, the old gentleman keeps a watch on his son to see that he maintains the old standards. The peculiar advantages of most work about a railroad are, of course, shown here in a form rather out of the ordinary; nevertheless these same characteristics in some form or other pervade the greater part of the industry. They are characteristics of which the public in general, and oftentimes the employees themselves, should hear a great deal more.

An Expensive Form of Conservatism

THE president of a large railway is reported to have replied to a representative of an electrical company, who presented to him the results of a study of the proposed electrification of a portion of that road showing an annual saving equivalent to 18 per cent on the investment that if the amount of money this project would require were available he had many other places where he could spend it and secure even larger returns. Another road, in making up its budget a year ago, started by eliminating all items that would not earn a return of more than 25 per cent on the investment. On still another road a program for improvements involving expenditures aggregating several hundred thousand dollars was submitted recently with proposals from manufacturers and contractors to take their pay in annual installments equal to the estimated savings that would be effected, with the expectation that these improvements would be entirely paid for in less than five years without the expenditure of a dollar of new money by the road; yet even these improvements have not been authorized. These conditions are not unusual; on the contrary they prevail on many, if not most, roads. The traffic has grown to such an extent and the development of improved methods and equipment has proceeded with such rapidity that many railway facilities become inadequate or obsolete in a short time. It is these developments that have caused the American railways to lead the world in the efficiency of their operation. These same developments have in large measure created the condition referred to above. However, regardless of its reason the fact that improved facilities will effect such marked economies warrants the serious consideration of railway managements, for the problem is not confined solely to the determination of the amounts that they can afford to spend, but in many cases it is more important to determine the expenditures which they cannot afford to postpone, for it is the savings resulting from these improvements, which individually are frequently relatively small, which make possible the financing of other improvements. A study of those public utilities which have made the most rapid progress in recent years shows almost without exception that these utilities have been most active in the replacement of obsolete with new equipment, frequently long before what might be termed its normal service life has been reached. Particularly in the electrical industry, units built only a few years ago have given way to larger and more economical equipment at intervals of only a few years, not because they were worn out or required replacement but because later developments have resulted in the construction of equipment of sufficiently greater efficiency to warrant the retirement of the older types. In the same way the railways can afford to give greater consideration to their facilities in order to earn for themselves the returns that result from improvements of this character.

How Much Are the Railways Earning?

AT a time when the net operating income of the railways is increasing as it has been lately their officers are in a confused state of gratification and dread; gratification because the net return earned is increasing, and dread because of the effect that widespread publication of statistics of increased earnings may have upon public sentiment and regulation. The net operating income of almost $125,000,000 reported for August is the largest ever reported for that month, and exceeds the amount earned in any other month since the carriers were returned to private operation, except in October, 1924. Furthermore, the total amount of net operating income earned in the first eight months of this year was larger than the amount earned in the corresponding months of any previous year. The present net return is likely to be taken by the public as showing that the railways are enjoying great prosperity especially if, as is often done, it is compared with the meager return earned in other years since the war.

The only real measure of the prosperity of an industry, however, is the percentage of return earned on its capitalization, its property investment or its valuation. There was no tentative valuation of the railways as a whole or by groups before the war and, therefore, to get a satisfactory measure of their recent and present prosperity it is necessary to compare the percentage of return they have been recently and are now earning on their property investment with the percentages of return earned by them on the same basis prior to their operation by the government. In this connection it should be recalled that the return earned in the years preceding government operation was so inadequate that the annual investment made in improvements and new facilities declined from more than one billion dollars in 1911 to less than 250 million dollars in 1916. The inadequacy of the return earned during this period was tacitly conceded by Congress, when in framing the Transportation Act, it decided it was expedient and necessary to adopt provisions assuring the railways that their rates would be so regulated in future as to enable them to earn a fair return.

How large, then, has been the net return earned by the railways since they were returned to private operation as compared with that earned by them before, and especially how large comparatively is the return being earned by them at the present time?

In the table published herewith are given the statistics of the Class I roads regarding property investment and net operating income earned in the seven and one-half years ending with 1917 and in the four years and eight months ending with August, 1925. Computations show that in past years the railways have, on the average, earned 60.5 per cent of their annual net operating income in the first eight months of each year, and, therefore, the net operating income earned in these months of this year is taken as 60.5 per cent of what they probably will earn in the entire year.

The statistics show that the property investment in the seven and one-half years preceding government operation averaged about $17,761,000,000, while in the years since 1920 it has averaged approximately $22,178,000,000, an increase of over $4,400,000,000. The average net operating income earned annually in the seven and one-half years before government operation was $869,790,500, and yielded an average return on property investment of 4.90 per cent. The average annual rate at which net operating income has been earned since 1920 has been $874,367,000,

or 3.94 per cent on property investment. In other words the percentage of return earned has averaged much less than it did before the adoption of government operation.

In 1916 the net operating income of the railways was the largest in history, and yielded a return of 5.90 per cent on property investment. Thus far this year it has shown a small increase over 1916. Since that year, however, the investment of new capital in the railways has amounted to almost six billion dollars. In consequence in the first eight months of this year the return earned was at the annual rate of only 4.65 per cent, which is not only much less than in 1916, but less than the average earned in the entire seven and one-half years immediately preceding the adoption of government control.

As is well known, it is the railways of the western group that are falling the farthest short of earning a reasonable return. The first year for which we have detailed statistics of net operating income by months is 1917. In the first eight months of that year the net operating income earned by the western roads was almost $294,000,000, while in the first eight months of 1925 it was less than $209,000,000, a decline of about $85,000,000, the result being that in the first eight months of this year the return earned by the western roads on property investment was the annual rate of only 3.62 per cent.

CLASS I ROADS, 1911-1917, INCLUSIVE

Year ended June 30	Property investment	Net railway operating income	Annual rate of return earned (per cent)
1911	$14,968,808,000	$724,184,708	4.84
1912	15,312,246,000	708,484,383	4.63
1913	15,948,878,000	787,610,435	4.94
1914	16,506,869,000	661,018,147	4.00
1915	16,806,311,000	683,104,833	4.06
1916	17,418,394,000	984,872,959	5.65
Calendar years			
1916	17,636,722,000	1,040,084,517	5.90
1917	18,606,834,000	934,068,770	5.02
Average 7½ years	$17,760,675,000	$869,790,500	4.90
Years 1921 to August, 1925, inclusive			
1921	$21,059,835,000	$615,945,614	2.92
1922	21,540,699,000	776,880,593	3.61
1923	21,945,488,000	983,736,225	4.48
1924	22,809,822,000	987,133,417	4.33
1925	23,534,566,000	*662,762,605	4.65
Average	$22,178,080,000	†$874,367,000	3.94

*Eight months.
†Annual average for 4.6 constructive years.

The facts given demonstrate that although the country is now more prosperous than at any time since before the war, the pre-war earning capacity of the railways as a whole has not been restored, although it was tacitly recognized by Congress in passing the Transportation Act that the return earned by them before the war was inadequate. It is easy to show that individual railways in every territory are doing well, but the country must depend for its transportation service upon all the roads and not upon only a few here and there.

The question naturally arises, if the railways under conditions of prosperity and active business such as prevail now cannot earn relatively as much return as before the war, in what position will they find themselves if in future the country becomes less prosperous? How the return earned by them fluctuates in periods of good and bad business is clearly shown by the statistics in the table. If they are to be able over periods of years to earn a fair average return, they must be allowed in years of good business to earn relatively large returns to offset the reductions in the return earned which always have and always will occur in years of poor business. In spite of the increases in their net operating income which have occurred recently, they are not earning as a whole anywhere near as much net return as they should when general business is good.

Recurrent Acknowledgment with Train Control

A DIFFERENCE of opinion exists among railroad officers and members of the Interstate Commerce Commission as to the Commission's requirement for the recurrent acknowledgement by enginemen at succeeding stop signals when a complete train control system with speed control is used. In the order of the Commission, No. 13,413, issued in June, 1922, sub-paragaph *b* of paragraph 2, of the specification for train control, reads under the heading "Functions," as follows:

"(b) Low-speed restriction, automatic brake application under control of the engineman who may, if alert, forestall application at a stop indication point or when entering a danger zone and proceed under the prescribed speed limit until the apparatus is automatically restored to normal or clear condition by reason of the removal of the condition which caused the low-speed restriction."

On July 22, 1924, Division I of the Commission, with Commissioner McManamy dissenting, made public in a press notice its interpretation of sub-paragraph *b* of paragraph 2, to the effect that, "constant practice requires definite acknowledgement by enginemen at each signal indicating stop." In others words, the term "danger zone" was interpreted as being limited to one block.

Again, in the report of Division I of the Commission covering the final inspection of the train control installation on the Oregon-Washington Railroad & Navigation, one of the exceptions to the approval reads as follows:

"(4) Provision must be made requiring enginemen to acknowledge at succeeding stop signals."

Officers in charge of train control on railroads where such systems have now been in service several months have found that with those train control systems where speed is limited to less than 25 miles an hour in occupied blocks, the engineman is fully aware of the circumstance and is, in effect, continuously acknowledging the condition by holding his speed under the limit, to avoid the application of the brakes. They contend that a requirement for recurrent acknowledgement at succeeding stop signals for a complete *train control* system with speed control is inconsistent with the operation of a *train stop* system where unlimited speed is possible in occupied blocks. It seems that those roads which have entered whole-heartedly into the development of train control are now to be penalized by the Commission by being required to furnish the recurrent acknowledgment feature which interpretation was announced by the Commission over a year after the order was issued. In view of these facts the Oregon-Washington has petitioned the Commission for a modification of its report of the final inspection of the train control installation on that road, in which the Commission included the requirement of recurrent acknowledgment, contending that such a feature is neither necessary nor desirable and requesting that this requirement be eliminated.

The members of the Commission are evidently not in accord on the requirement for recurrent acknowledgment for Commissioner McManamy dissented from the interpretation of its being required under the Commission's order, and in the final report on the O. W. R. R. & N. inspection, Commissioner McChord, in his dissenting opinion, states that, "if it is considered imperative that acknowledgment at succeeding stop signals is necessary to comply with the Commission's specifications and requirements, as set forth in Order No. 13413, this installation does not meet the above mentioned interpretation for the reason that succeeding stop signals do not have to be acknowledged." Regardless of the merits of the case

on this individual railroad, a clean-cut decision with explanations of the reasons prompting the interpretation at a "danger zone" as being limited to a block will clarify the atmosphere.

A Labor Union Paper on the Western Rate Case

THE relations between railways and their employees are now more satisfactory to both than they have been for years, but the desire of many railway labor leaders to prejudice employees and the public against the roads is still constantly manifested. The locomotive engineers are the highest paid of railway employees. The average wage of road passenger engineers in July was $276 and of road freight engineers $263, or more than twice as much as the average for all employees. It might naturally be expected, therefore, that their spokesmen would be more accurate and conservative in their utterances regarding railway matters than those of any other union. On the contrary, the Locomotive Engineers' Journal is more diligent in misrepresenting the railways than the monthly organ of any other labor union.

The Journal in its issue for October published an editorial entitled: "Will Higher Rates Help the Western Roads?" They would help both the railways and their employees in one important respect. They would help the roads to pay the present high wages of the employees. The average hourly wage of railway employees in 1916 was 28.3 cents and in July, 1925, it was 64.3 cents, an increase of more than 127 per cent. It is mainly because of the necessity of paying this higher average wage that the operating expenses of the western lines are so high and that they need higher rates. It might be expected, therefore, that labor leaders and their magazines would support the railways in their effort to get adequate rates. On the contrary, the Locomotive Engineers' Journal completely misrepresents the reasons given by the witnesses of the western roads in support of their petition for higher rates. It says: "The western roads base their case for rate increases upon the following claims: Loss of freight traffic, due to competition of the Panama Canal and competing Canadian roads on transcontinental hauls, and of motor trucks for short land transportation, as well as anemic business conditions in the northwest." The references to Canadian competition and "anemic" business conditions are not true, and the statement wholly ignores the main ground upon which the western roads base their case which is that their average rate per ton per mile is only about 37 per cent higher than before the war, while the wages they must pay and their other operating costs have increased much more in proportion, with the result that the net operating income earned by them has declined about $85,000,000 annually. Why did not the Locomotive Engineers' Journal anywhere in its editorial mention the detailed and incontrovertible statistics presented by the railroad witnesses showing how much more operating expenses have increased than rates? Why, in particular, did it not mention the contrast between the increase of 127 per cent in the average hourly wage of employees with the increase of only 37 per cent in the average freight rate?

Having deliberately misstated the main grounds upon which the western roads are asking for an advance in rates, and thereby misrepresented their case to its readers, the Locomotive Engineers' Journal continued its discussion by charging that the railways are seeking to get rates which will enable them to earn a return on a grossly excessive valuation. It said: "At some trouble we have investigated the alleged 'book valuations' of certain western roads. We find that one of the present complainants has in its capitalization $407,325,000 of pure water on which the bankrupt western farmers are now supposed to pay 5¾ per cent return. Another main northwestern road, sponsored by the same great promoter, secured as a gift from the United States Government 9,962,896 acres of public land covered with valuable timber, as well as land for a free right-of-way, against which it has issued $245,613,500 of securities and has already collected from the travelling and shipping public more than $100,000,000 additional in dividends and interest thereon. A third northwestern road, now in dire need of additional funds, poured $100,000,000 of undiluted water into its capitalization back in 1909, on which the public has been paying unwarranted interest and dividends ever since."

The *Railway Age* believes it knows the history of western railways as well as the Locomotive Engineers' Journal, and we assert that almost every statement made in the foregoing quotation is false and challenge the Journal to publish evidence in proof of them. The locomotive engineers of the country are an intelligent class of men, and are entitled to expect from the organ of their brotherhood something better than such reckless misrepresentations.

The Locomotive Engineers' Journal then proceeds to give the railways some kindly and even fatherly advice, as follows: "For the sake of their own self-preservation the western roads would do well to heed the public demand for an honest valuation of their properties and then seek an ample income on their sound valuation by means of the lowest possible rates and the greatest possible efficiency. Along this line lies the salvation of privately owned public carriers. The opposite policy will lead straight to public ownership." The sincerity which dictated the foregoing may be inferred from the fact that the Locomotive Engineers' Journal supported La Follette for president and long has been an ardent advocate of government ownership of railways. It must, therefore, be terribly afraid that the railways will adopt a policy that will bring about government ownership.

The western lines in 1924 paid their employees approximately $500,000,000 more in wages than in 1916 and earned approximately $85,000,000 less net operating income. The Locomotive Engineers' Journal says: "The proposed freight increases would mean a further handicap of $90,000,000 a year additional freight charges on the western farmers." This statement is false in two particulars. First, it overstates the total advance for which the railways are asking, and, secondly, the advance on farm products would be less than one-fourth of the total advance being asked for. In view, however, of the facts that the wages being paid by the western lines to their employees are about double what they were in 1916, while the advance in rates being sought would hardly make their net operating income equal to what it was in that year, the solicitude expressed by the Locomotive Engineers' Journal for the western farmer is really quite touching. It would be equally touching and more sincere if the Journal would suggest that the proposed advance in rates be made unnecessary by taking away about one-sixth of the advance in wages since 1916 that the western roads are being obliged to pay, which would be just about equivalent to the advance in rates for which the roads are asking.

The railways have not suggested any reduction in the wages of their employees for the relief of the farmer, and since this is true it seems a singular thing that the members of the Brotherhood of Locomotive Engineers should support their paper in opposing the fixing of rates which are made necessary mainly by the high wages that the employees are receiving.

New Books

The Making of a Railroad Officer, by Robert E. Woodruff, Superintendent, Erie Railroad. 244 pages, 6 in. by 8¾ in. Bound in cloth. Published by Simmons-Boardman Publishing Company, New York. Price, $2.00.

The title of this book suggests that it is a manual aimed particularly at the younger men in the service who are hoping for promotion and are trying to fit themselves for it. And that is what, primarily, the book is. But it is more than that; it is a collection of experiences gained in extensive service by a man of more than ordinary powers of observation, together with general principles derived from these experiences, formulating a philosophy of life for a railroad man. The book, therefore, will be of quite as much interest and value to the railroad officer who has already "arrived" as it will to the young man whose career lies still ahead of him.

The question of the college man's place on the railroad is one of ever-present interest. One of the main advantages which most college men have over many of their fellows is a somewhat larger vision of the railroad as a whole, and, in addition, the habit of study. If an ambitious young man in railroad service who has not had the advantage of college training can somehow develop this wider view—learn to see the railroad as a whole rather than simply through the eyes of his one department—and can develop a habit of study, he will find that the college man has little if any advantage over him. To an alert reader, this book will point the way toward the acquisition of this wider point of view. On the other hand, the college man, whatever advantage his education may give him, is sometimes suspected of thinking that special privileges should be shown him. Perhaps this is true and perhaps it is not, but the college man does need to learn something of the problems that arise in actual experience. This is what his education has not given him. This book not only relates in detail some of the experiences which are of common occurrence but points the way out of many difficulties which may arise. It, therefore, has a double appeal to ambitious young men in the ranks, college trained or otherwise, by supplying in a measure the deficiencies of both methods of approach to a railroad career.

The book begins at the beginning—obtaining a job. A mythical young man, John Brown, who, the reader will suspect, is none other than the author himself, is about to graduate from college and is looking for a job. Most of his classmates are seeking positions which pay the highest initial salaries. He is not; he seeks first to gain a wide experience. A professor suggests a certain railroad as a good prospect, since it has just changed management and is on the upgrade; and probably will offer better opportunities for a young man than a road already well organized. Right in the first paragraph, then, the author opens up, not with theorizing, but with practical advice and information. In the second paragraph he tells how John applies for a job as section laborer and gets it. No uppety young college chap this, seeking advancement by the silk-stocking route!

And the first day he starts to learn things. He learns not to carry his food in a paper bag which will be soiled by grease. He learns how the section foreman takes life easy, at the same time giving his superiors the impression that he is very industrious. He learns the poor effect on the morale of the men when a supervisor "bawls out" a foreman before them. He learns how section gangs when they work together try to palm off their old tools on each other. He learns to make friends with alien workmen. And so on for many pages—hardly a line which does not record a specific experience and the lesson derived from it. One of the most important lessons learned in these early days was the following: "It is easier, quicker and cheaper to learn from the experience of others than from one's own experience." One might add: Particularly when the other man's experience is so rich and he records it so well as Mr. Woodruff!

A few chapter headings and subdivisions under them, selected at random, will give the reader an idea of the wealth of material dealt with by the author. They are, to wit: How an Officer is Judged; Principles of Salesmanship; Different Men Appealed to in Different Ways; Study of Human Nature; Expression or General Appearance; Employment; The Wrong Job; Physical Characteristics of a Good Locomotive Engineer, Conductor, Operator, Shopman; Psychology and Memory; Job Analysis; Duties of a Trainmaster; Policy of One Department Should Fit System Policy; Planning the Work; Experiences as a Yardmaster; A File System; Motion Study; Locating Trouble; Organizing the Work; Clearing a Blocked Division; Rearranging an Engine Schedule; How to Correct a Subordinate; Over-standardization; Cost Studies; Out of Pocket Costs; A Daily Performance Sheet; Bonus for Efficient Operation; Charting Statistics; A Train Cost Chart; Elimination of Emergencies; Safety; Public Speaking; Ethics; Staff Teamwork; Personal Application; Why Men Stagnate; Training Men Under Your Supervision.

These are only a very few of the subjects covered, but they are perhaps sufficient to give an idea of the range of the work. And the author bases all his principles and generalizations on definite instances which have arisen in his experience. This keeps the subject from soaring above the head of the literal-minded reader and also serves to make his recommendations specific. There will doubtless be some differences of opinion concerning some of his statements, but if one should write a book covering this field and include in it only those principles on which there is general agreement, the book would be so elementary as to lose its value outside the kindergarten. Too many books dealing with the technique of various occupations have stumbled into this fault, and it is encouraging to see this author avoid it, even at the expense of arousing some criticism on the part of those who will not agree with all his conclusions.

But this quality makes the work of value to railroad officers who have already "arrived"—persons who could not possibly be interested in it otherwise. These readers will look at the work not so much as an authority telling them how to succeed—they have already done that—but rather as a collection of intelligent observations and comments by one of their own kind, with whom they may differ as they see fit.

Readers of this calibre—and probably many of the younger men too—will, we believe, question the length to which the author goes in placing his trust in the so-called "science of character analysis," whereby it is believed possible to lay down definite rules concerning the characteristics of men according as they are blondes, brunettes, high-browed or lantern-jawed and so on. The author is perfectly honest about it and says in a footnote that the possibility of so arriving at an approximation of character is questioned. But even if it is possible to arrive at accurate conclusions from the observation of features, the fact remains that it is a task for experts. It is probably true to say that, other things being equal, blondes are thus and so. But other things are *not* equal. A skilled character analyst knows this and is careful to weigh all the factors obtainable, but even then his estimates are not always free from error. It is doubtful whether the author can successfully inculcate sufficient knowledge of the subject in his brief treatment of it to make his readers expert therein. They must, therefore, look upon his state-

ments merely as introductory to the subject and await further study and richer experience before they begin dogmatically to judge their fellows with these rules.

The author holds with other progressive railroad officers that the railroad man should be active in citizenship, taking part in civic and similar activities in the community in which he lives—not only in order that he may thereby become a well-rounded man himself, but so that he may properly interpret the railroad to the community as well. Mr. Woodruff believes that, in railroad work, the full man is one who is not only the master of the technique of his job but one who also can meet and talk to people in other walks of life, spreading understanding as he goes. He would make a social man, a public speaker, a salesman out of the "doer." He gives valuable suggestions as to means of accomplishing this end. Most men of the "doer" type need all the help they can get along this line!

There are few books on technical subjects as easy to read as this one. Not only is the style simple and clear but the material is logically arranged and redundancy absent. The type is clear and large, and every subject dealt with has a side-head in bold-face type which, with a complete index, makes reference easy. Railroad officers and ambitious men in the ranks alike will find the book interesting and helpful.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Car Ferries—A List of References, compiled by Libraries of Bureau of Railway Economics and Railway Age. 24 p. Issued by Library, Bureau of Railway Economics, Washington, D. C. Apply.

Career of Samuel Rea, Ninth President of the Pennsylvania Railroad, by E. Clarke Fowler. P. R. R. Information for the Public and Employees, Oct., 1925. 18 p. Published by Pennsylvania Railroad, Philadelphia, Penna. Apply.

Eyesight Conservation Survey, compiled by J. A. Hannum; edited by G. A. Henry. Includes material on visual requirements of railway employees, car and bus lighting, and bibliography. Eyesight conservation bulletin No. 7. 218 p. Published by Eyesight Conservation Council, New York City.

Historical Sketch of the Baltimore and Ohio—America's First Railroad. Illustrated. 15 p. Published by Baltimore & Ohio Railroad, Baltimore, Md. Apply.

New Zealand Railways Statement 1925, by Hon. J. G. Coates, Minister of Railways. Includes besides annual report of management several pages of photographs showing N. Z. locomotives from 1862 to present. 81 p., charts, tables, photographs. Published by W. A. G. Skinner, Government Printer, Wellington, N. Z.

The Western Freight Rates Advance Case. Summary of General Railway Testimony Presented to the Interstate Commerce Commission. In hearings at Chicago, Sept. 8-16, 1925. 49 p. Pub. by Western Railways' Committee on Public Relations, Chicago, Ill. Apply.

Periodical Articles

A Host on Wheels, by Samuel T. Moore. Work of C. E. McCullough of the Pennsylvania Railroad in escorting celebrities around the country. Everybody's Magazine, October, 1925, p. 70-75, 156, 158.

Letters to the Editor

[*The* Railway Age *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.*]

Are Pensions Worth the Cost?

Newark, N. J.

To the Editor:

Mr. Clark in his letter, "What About Our Pension Systems?" in the *Railway Age* of September 26 raises an important question regarding the probable cost of pensions to railroads. There is, however, another equally important question, viz., is the money well spent; are the railroads administering the funds in such a way as to get a dollar's worth of improved morale for every dollar they spend in pensions?

I am inclined to doubt that they are. What have they done to assure an old employee that he will not be discharged from service a year or two before he reaches the age for a pension? What have they done successfully to refute the charge which some union leaders make to the effect that railroads in establishing pension systems are actuated by no other motive than that of weaning the employees away from the unions? This charge may be grossly untrue, but the fact that the pensions are administered in such a way as to make some persons believe it detracts from the morale-building efficiency of the pension dollar.

Again, what provisions have the railroads made for reducing the age of retirement in certain strenuous occupations? A man of 65 may be ever so alert mentally and capable of performing light physical duties until he reaches 70. At the same time there are many duties on the railroad which are too strenuous to be performed by the average man over 60. The man in one of these occupations not infrequently finds it necessary to retire before he reaches pensionable age. Is he not being thoughtlessly discriminated against and does not this knowledge on his part and of his associates still further reduce the efficiency of the pension dollar?

The problem of financing is important, as Mr. Clark suggests, but that of securing full value for the money spent is just as much so. Are not the railroads working on rule-of-thumb methods here as well as on the side of making adequate provision for financing?

W. V. V.

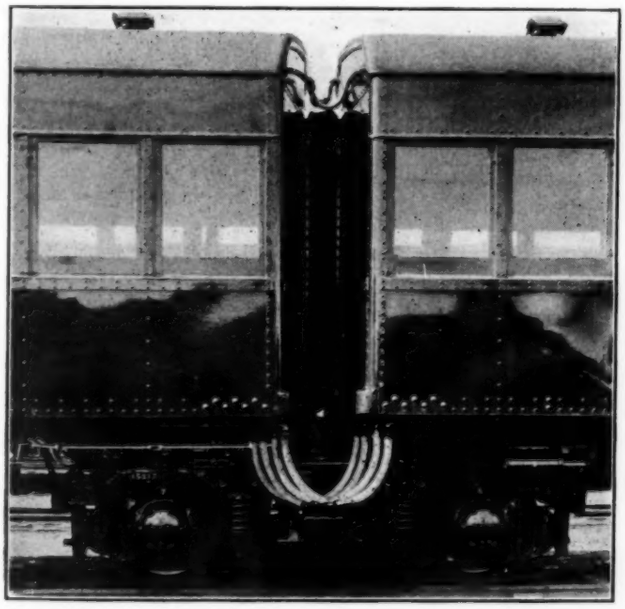
Radio Station WPI, Memphis, Tenn., using a five-kilowatt Navy standard transmitting apparatus, acts as a "dispatching station" for freight and passenger boats on the Mississippi River. The boats operated by the government carry two-kilowatt commercial type transmitters and every boat is required to call every three hours throughout the day, and give its location. It is said that this improved means of communication, as compared with former conditions, has greatly facilitated river traffic, saving time at loading and unloading points and hastening relief in case a boat breaks down. After an experience of three years, the boat captains, at first objectors, now regard the wireless dispatching as an essential of efficient service.

Canadian National Articulated Diesel-Electric Motor Rail Car

Diesel-Electric Cars for the Canadian National

Two are of articulated construction having a total seating capacity of 126*—Equipped with three-passenger seats*

THE Canadian National has developed and recently placed in service the first of an order of nine Diesel-electric cars which are being built at its Point St. Charles shops, Montreal, Quebec. Seven of the



Exterior View Showing the Center Truck and Connections Between the Two Units of the Articulated Car

nine units are single cars having an overall length of 60 ft. and the remaining two are of the articulated type with an overall length of 102 ft.

The two types of cars contain many similar features of design and construction. The bodies of both the 60-ft. and the articulated cars were built by the Ottawa Car Manufacturing Company and are of steel construction throughout. The interiors are finished in mahogany and have a 5/16-in. Agasote ceiling painted in cream color. Double floors are applied throughout with the exception of the engine rooms where a single floor 1¼ in. thick, covered with checkered aluminum floor plates, is used. The floor consists of one layer of 13/16-in. white pine and a top floor of ⅝-in. fir, with a double thickness of building paper between. The side lining below the windows is 5/16-in. Agasote painted to match the interior finish. Both types of cars are equipped with single windows of cherry, to which storm sash can be applied for winter use. Three-ply Salamander insulation is applied below the windows, two-ply above the windows and one-ply on the ceiling. The roof boards are of ½-in. whitewood covered with No. 6 canvas laid in white lead. Parcel racks running the full length of the passenger compartments are provided.

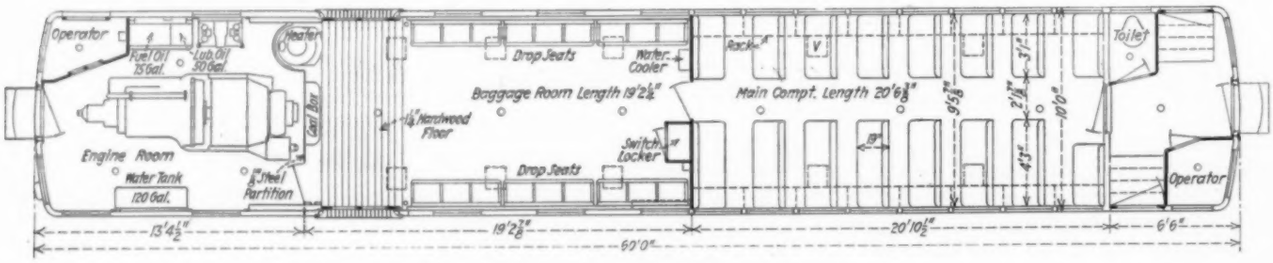
Electric lighting is provided from 30-volt storage batteries. Aluminum conduits for carrying the lighting circuits, power and control circuits are used throughout. Ventilation is provided by exhaust type ventilators in the roof. Smith hot water heaters are used for heating both types of cars. The 60-ft. car is equipped with one hot water heater which is placed in the baggage room. The articulated car has a heater located in the baggage room and one at the rear end of the passenger compartment. All of the pipes used in the heating system are of aluminum.

The Articulated Car

Each unit of the articulated cars consists of two bodies mounted on three four-wheel trucks. As shown in the floor plan of the articulated car, the front half contains the engine room, baggage room and smoking compartment which has a seating capacity of 35 persons. The rear half has a seating capacity of 91. The seats used

in both compartments are of the Heywood-Wakefield reversible type, placed 2 ft. 7 in. center to center, and are upholstered in Spanish leather. Forty of the seats each accommodate three people while three seats provide for two passengers each, giving a total seating capacity for the articulated car of 126. The inside width is 10 ft. 4⅝ in. which permits the installation of seats 4 ft. 3 in. wide and allows an aisle space of 1 ft. 10⅝ in.

The length over the end sills of the front half of the articulated car is 51 ft. 3 in., and the length over the end sills of the rear half is 50 ft. 9 in. The overall height is 14 ft. 4⅜ in., and the width over the side sills is 10 ft. 10¾ in. The inside length of the engine room of the articulated car is 17 ft. 6 in., and the inside length of the baggage compartment is 16 ft. 6 in. The partitions between the engine room and baggage room are of steel and are so constructed that they can be removed if necessary to work at the power unit. Roof hatches are provided directly over the engine and generator so that either may be removed by a crane for repair purposes. The hatch covers are provided with four ventilators operated from the engine room.



Floor Plan of the 60-ft. Motor Rail Car

The Sixty-Foot Car

The seats in the 60-ft. car are of the same design and manufacture as those of the articulated car. They accommodate three persons on one side and two on the other. In addition, the baggage room of this car is provided with drop seats of wooden construction giving a total seating capacity of 57.

The width over the side sills is 10 ft. which allows an inside width of 9 ft. 5⅞ in. The overall height is 15 ft. ¾ in. The distance between truck centers is 39 ft. 3 in. making a total wheel base length of 46 ft. 1 in.

The Engines

The engines installed in these cars were manufactured by William Beardmore & Co., Ltd., London, England. The design is a modification of this company's standard aeroplane engine which was changed to meet the service conditions of rail car operation. These engines conform to a modified Diesel cycle of the solid injection four-stroke cycle type and are arranged with four cylinders in line for the small unit which is used on the 60-ft. car, and eight in line for the large unit which is used on the articulated car. The cylinders in both engines have 8¼ in. bore by 12 in. stroke and develop 185 b. hp. at 700 r.p.m. in the small unit and 340 b. hp. at 650 r.p.m. in the large unit. The engine in the 60-ft. car weighs 2,750 lb. and that in the articulated car weighs 5,450 lb., or a fraction under 15 lb. per horsepower for the smaller engine and slightly more than 16 lb. per horsepower for the larger engine.

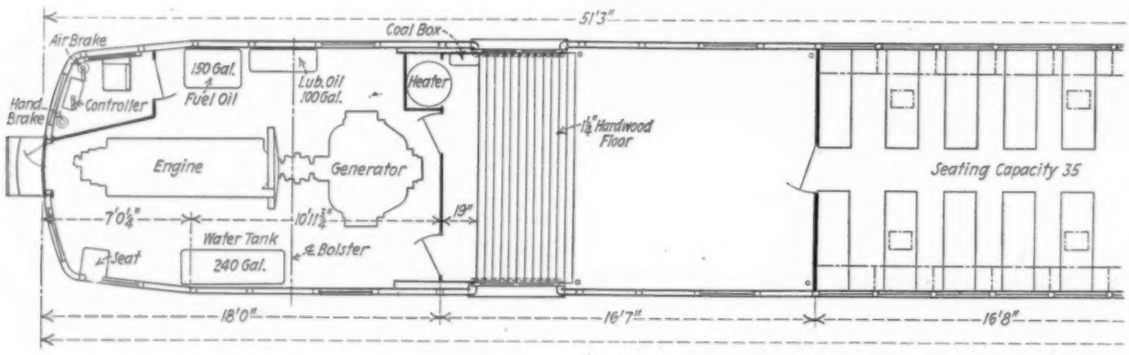
The low weight per horsepower was obtained through the selection of materials. The designers were able to reduce the thickness of the materials to a minimum through the use of high tensile steels and special alloys. For example, the crank case is of cast steel; the cylinder liners are made of forged steel; the cylinder heads, of cast aluminum; the valve seats, of alloy steel; the pistons, of forged aluminum; the crank shaft of special forged alloy steel; the sump cover, of sheet steel; and the connecting rods, of special forged steel. The exhaust from each cylinder enters a manifold on the side of the engine from which one exhaust pipe for every four cylinders is carried vertically up through the roof.

A light residue oil of .86 specific gravity is used for fuel. It passes through two filters before being delivered to the distributing plunger pumps, of which there is one for each pair of cylinders.

These pumps deliver the fuel to the atomizers at from 8,000 lb. to 10,000 lb. per sq. in.

Electrical Equipment

The electrical equipment on the articulated car was manufactured by the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., and consists of a 200-kw., 600-volt d.c. generator mounted on a common bed plate with the engine and connected to it by a Fast flexible coupling. Pressed felt liners 1½ in. thick are



Floor Plan of the Articulated Motor Rail Cars Recently

placed between the bed plate and the car sills to absorb vibration.

The generator is differentially compound wound, the shunt field being excited from a 300-volt battery. The motors are 600-volt railway type 548-C-8, with a one-hour rating of 145 amp. connected permanently in parallel and mounted two on each of the front and rear trucks and connected to the axles by helical gearing.

The car is operated by master controllers located at each end, different speeds being obtained by a resistance control of the main generator field. Besides the master controllers, the main control apparatus consists of a switch group comprising eight electro-pneumatic switches, two reversers, an overload trip relay, and a sequence drum. The auxiliary control apparatus consists of a potential relay, an ampere hour meter, a battery charging relay, a field relay, a throttle valve, a control and reset switch and the necessary knife blade switches for the control of the several circuits. False operation of the various circuits is prevented by necessary interlocking between controls, which also makes the entire operation practically automatic.

The air for the magnet valves is taken from the air brake system and is maintained at about 70 lb. pressure, the electro-pneumatic control being the standard H.L. equipment throughout. The acceleration of the car is practically automatic as the control can be thrown to the "full" position, allowing the sequence drum to increase the generator voltage in four or five seconds. All controller positions are, of course, running positions, and lower speeds than the maximum can be obtained by intermediate points on the controller.

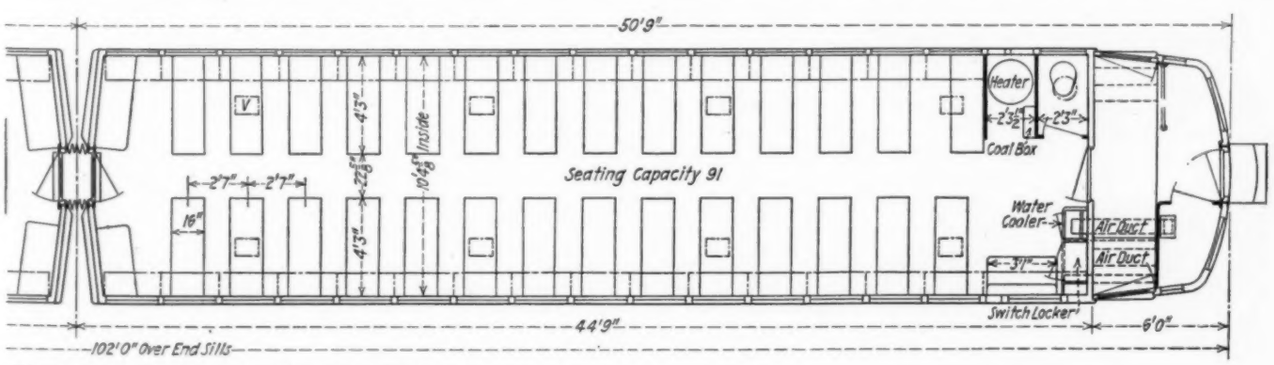
The engine is started by the generator driven as a motor, from the 300-volt battery, this starting position being obtained from the controller by moving the operating handle contrary to its operating direction. The engine starting position is also the battery charging position when the car is standing. By motoring the generator the 300-volt battery brings the engine to a speed of about 200 r.p.m. at which speed it fires on the first compression, the starting current for about two seconds being a maximum of 480 amp. down to 230 amp. at 150 volts. The battery voltage is applied to the generator through resistance steps and at the same time the engine throttle is moved by an electrically controlled air cylinder to full fuel position.

The battery is composed of 150 cells, M.V.A. 17 Exide Ironclad, and is located in two sections in steel boxes suspended from the floor of the rear half of the car. With the car running and the controller on either of the last two notches, the potential relay cuts in and allows the generator current to charge the battery. This continues as long as the controller is on either of the last two notches or until the charging current is cut off by the ampere-hour meter.

Besides being used for starting purposes, the battery also supplies the control circuits at 30 volts; the generator field excitation at 300 volts; the two air compressors at 300 volts, and the car lighting at 30 volts. Low voltage circuits can be distributed over 90 of the 150 cells and standard lamp regulators are used to compensate for the charging voltage. Emergency switching is provided so that any of the 30-volt sections can be charged from the generator while the car is standing. One of the main reasons for having the 300-volt battery is that in case of necessity, owing to a total engine failure, the car can be moved on half voltage to the next siding, in order to clear the main line.

In carrying the circuits across the articulation, every effort has been made to secure accessibility and reliability. All the control wires are carried through the ceilings of the cars, terminating at each side of the articulation in junction boxes located in the car ceiling. The only heavy cables crossing the articulation are the generator bus liners to the motors, the battery line to the generator and the train line lighting circuit. By locating a reverser

The 60-ft. Diesel-Electric Motor Rail Car—Seven Cars of this Type Are in Process of Construction



Placed in Service by the Canadian National

on each half of the car, the necessity of carrying the motor leads across the articulation is avoided. Multiple unit control has been installed so that two or more cars can be operated from any one operator's position.

The electrical equipment of the 60-ft. car was manufactured by the British Thomson-Houston Company, Rugby, England and the General Electric Company, Schenectady, N. Y. The generator, which was shipped with the engine from England, is a 105-kw., 600-volt d.c. differentially compound wound machine mounted on a common bed plate with and rigidly connected to the engine. Pressed felt liners 1½-in. thick are placed between the car sills to absorb vibration. On the same shaft with the generator is mounted a 6-kw. 60-volt exciter. The balance of the electrical equipment consists of two G.E. 240-A, 600-volt, 150-amp. (one hour rating) railway motors, mounted on the front truck and connected through helical gears. The controllers located at each end connect the motors in series, parallel or shunt field forward, and series or parallel reverse.

A 120-volt M.V.A. 17 Ironclad Exide battery is carried underneath the rear of the car. Thirty cells are suspended from the floor in a steel battery box on each side of the car. This battery furnishes starting current for driving the generator as a motor in a manner similar to that described for the articulated car, only 16 cells of which, however, supply the excitation of the exciter field and the car lighting. The 120-volt battery is charged from the generator by a special charging circuit used while the car is standing. The 32-volt portion is automatically charged by the exciter when its voltage is higher than the battery voltage.

The car speed is controlled by the engine throttle, which is mechanically connected to an operating lever located in the operator's cab at each end of the car. The electrical controllers merely connect the motors to the generator circuit in series or parallel and are not used to operate the car. The first movement of the throttle lever closes the throttle relay switch, thus closing the exciter field circuit, and allowing the generator voltage to build up from zero across the driving motors. A further opening of the engine throttle increases the generator voltage and, therefore, the car speed.

The lubricating oil for the engines is forced under pressure to all working parts, passing through a double filter in its circuit.

A centrifugal pump is used to circulate cooling water through the engine. This pump is mounted on the main gear case and can be easily detached for examination. Flow indicators are installed in the lubricating oil and cooling water circuits which indicate a stoppage of flow by lighting a lamp in the operator's room.

A centrifugal type governor driven off the crank shaft is coupled to the fuel pump control and is so arranged as to increase or decrease the oil supply to the fuel distributing system. It is fitted with an emergency device to cut the fuel pumps out of action should the r.p.m. of the engine for any reason be increased above the desired speed.

Both cars are equipped with the Universal Draft Gear Attachment Company's hand-brake booster and vertical operating ratchet handle. The standard train air communicating signal system is used.

A 12-in. Golden-Glow headlight is mounted on the roof at each end of each car. The Canadian National standard number lamps and Strombos horns are also provided, as shown in one of the illustrations. Miniere window cleaners are installed on the front window of each operator's room. Each car is equipped with a listening tube which runs from the engine room to the rear operating room. Sand boxes are suspended from the underframe and are filled through holes in the car floor. Hanlon sanders provide sand to the front of the front truck and to the rear of the rear truck.

The 60-ft. car has two full-size Rome Turney radiators mounted on the roof for cooling water and one half-size for cooling lubricating oil. The articulated car has four full-size radiators for cooling water and one full-size radiator for cooling lubricating oil.

The tanks for water, fuel oil and lubricating oil are all made of 3/16-in. and ¼-in. aluminum plate and are located in the engine room. The piping is of aluminum, except in a few places where copper is used. The water tank on the 60-ft. car has a capacity of 120 gal.; the fuel oil tank, 75 gal., and the lubricating oil tank, 50 gal. On the articulated car the water tank has a capacity of 240 gal.; the fuel oil tank, 150 gal., and the lubricating oil tank, 100 gal.

Interior View of the Rear Unit of the Articulated Car—The Seats Are Designed for Three Passengers

Midwest air filters are applied to all of the cars for filtering the air supply to the engines. The filters used on the 60-ft. car are mounted on the ceiling of the engine room, while those on the articulated car are mounted on the left-hand wall of the engine room which is provided with shutter inlet to keep out the rain or snow.

The Trucks on the Articulated Car Are Equipped with Roller Bearings

The three trucks of the articulated car are of Commonwealth design having 5-in. by 9-in. journals and 36-in. rolled steel wheels. The journals are equipped with S.K.F. self-alining roller bearings. Motors are mounted on the front and rear trucks only.

The center truck of the articulated car carries one end of both the front and rear body sections. Each section is provided with a special cast steel end sill to which are bolted center castings, one of which sets within the other, both engaging the truck center plate. A safety type locking pin is used, and safety bars are also provided. A one-piece canvas diaphragm encloses the space between the front and rear halves and a diamond steel foot plate is located at about the floor level.

The brake equipment is Westinghouse, schedule A.M.F. The air pressure on the articulated car is supplied by two DH-16 compressors connected in parallel. The braking ratios are based on 50-lb. cylinder pressure, being 83 per

cent on the front and rear trucks and 75 per cent on the center truck. The trucks are equipped with the A.S.F. suburban type Simplex clasp brakes. The front and center trucks are fitted with a new design of brake which consists of a standard Type D freight brake cylinder mounted on each side of the truck frame and connected directly to the front brake gear. A flexible cylinder pipe connection is located near the center of the truck. On account of insufficient clearance, the cylinder for the rear truck is attached to the car body.

Compressed air for the 60-ft. car is supplied by a General Electric CP28-D compressor. The braking ratio is 83 per cent based on 50-lb. cylinder pressure. The trucks are equipped with single shoe type brake with the standard body brake arrangements. They have 36-in. rolled steel wheels, A.R.A. boxes and brasses, cast steel side frames and built-up bolsters. The front truck carries two motors and has 5-in. by 9-in. journals. No motors are used on the rear truck which is equipped with 4¼-in. by 8-in. journals.

It is reported that both cars have attained a speed on level track of approximately 60 miles per hour and show a fuel consumption for non-stop runs of 3.5 miles per gallon on the large car and 7 miles per gallon on the small car. Both cars have sufficient power to handle a trailer over an average profile at a proportionally reduced speed. Car accelerations up to 40 and 30 miles per hour respectively have been made in actual test.

PRINCIPAL DIMENSIONS AND PROPORTIONS OF THE CANADIAN NATIONAL DIESEL-ELECTRIC CARS

	60 ft. cars	Articulated cars
Builder	Canadian National	Canadian National
Type	Diesel-electric	Diesel-electric
Total weight	101,000 lb.	188,000 lb.
Total wheel base	46 ft. 1 in.	85 ft. 10 in.
Diesel engine:		
Builder	William Beardmore & Co., Ltd.	William Beardmore & Co., Ltd.
Type	4 cyl., 4 cycle	8 cyl., 4 cycle
Rated capacity	185 b.hp. at 700 r.p.m.	340 b.hp. at 650 r.p.m.
Cylinders, diameter and stroke	8¼ in. by 12 in.	8¼ in. by 12 in.
Weight	2,750 lb.	5,450 lb.
Generator:		
Type	Thomson – Houston, 105 kw. d.c.	Westinghouse 200 kw. d.c.
Voltage	600	600
Motors:		
Number	2	4
Type	General Electric Type 240-A	Westinghouse, 200 hp.
Capacity of fuel tanks	75 gal.	150 gal.
Length over couplers	60 ft.	102 ft.
Width, inside	9 ft. 5⅞ in.	10 ft. 4⅝ in.
Height, overall	15 ft. ¾ in.	15 ft. 4⅜ in.
Diameter of wheels	36 in.	36 in.
Size of journals	5 in. by 9 in., front truck, 4½ in. by 8 in., rear truck	5 in. by 9 in.
Total seating capacity	57	126

Hearing on Lease of Virginian by Norfolk & Western

WASHINGTON, D. C.

HEARING on the application of the Norfolk & Western for authority to lease the Virginian for 999 years, at a rental covering taxes, operating expenses and 6 per cent dividends on the preferred and common stock, was begun before Examiner Davis of the Interstate Commerce Commission on October 12. In an opening statement by counsel it was stated that this plan is in accordance with the recommendations of Prof. W. Z. Ripley, that the Virginian be placed in a system with the Norfolk & Western, although the commission in its tentative consolidation plan presented an alternative suggestion placing the Virginian with the Chesapeake & Ohio. Negotiations for a lease to the Norfolk & Western were begun in 1921 but terms could not be agreed upon. In the autumn of 1924 there was a proposal by the Van Sweringen interests for a joint lease of the Virginian to the Chesapeake & Ohio and the Norfolk & Western, but this was rejected by the Norfolk & Western board as unsuitable, even if terms could be agreed upon. In February, 1925, the conferences which led to present petition were inaugurated, the conferences being described as "across table negotiations between Norfolk & Western officials and Virginian officials." "This negotiation was not a matter in which bankers were concerned or commissions would be incurred," the preliminary statement by counsel continued, "but was a direct negotiation between the owners of the two properties to see whether terms in the interest of both and the public could be agreed upon."

"Professor Ripley had pointed out that a single outlet to Lake Erie might thus be developed for both roads; that the terminals of the two roads at Norfolk were adjacent; that the Virginian was close enough to the Norfolk & Western for joint operation to facilitate the movement of tonnage and the coal fields to tide; that the regional director (N. D. Maher) had, during the Railroad Administration, turned the eastbound tidewater coal of the Norfolk & Western on to the Virginian at Roanoke and had moved it over that line to escape the Blue Ridge Summit grade, and had run the Virginian westbound movement over the Norfolk & Western; that the two lines had thus been used in common for about 100 miles; that both roads tapped the same kind of coal measures, low and high volatile, and had interchangeable output of coal; and that none of these operating advantages and economies of unified operation was applicable to a combination of the Virginian with the Chesapeake & Ohio. Professor Ripley's conclusion was that any proposal 'to group the Hampton Roads properties more closely should take the form of alliance of the Virginian and Norfolk & Western.'

Electrification

"The Norfolk & Western and Virginian have been equipped in the coal fields with the same system of electric power. As to power houses and electric locomotives the two roads can be operated as one with economy and advantage. Important capital expenditure will also be avoided or minimized. Unification will avoid the necessity for increasing the Virginian car supply. Freedom in interchange of coal will reduce the time required to accumulate cargoes and reduce the delays of cars standing at tidewater. The Norfolk & Western now has cross-loaded car movement to the East from mines in the western part of its fields and to the West from its eastern mines. Under unified operation cars returning empty from carrying Virginian coal to the West would not have to be moved through the field empty for return to the Virginian but could be placed at the Norfolk & Western mines closest to the western gateways. Norfolk & Western coal may be turned from the west to the east to replace Virginian coal turned from the east to the west and Norfolk & Western cars will be available for Virginian coal.

"By using the excess power and electric locomotives of the Virginian the Norfolk & Western expects to save a capital expenditure in connection with electrification of its own line from the coal field west to Williamson that may amount to $10,000,000.

"From the traffic viewpoint also the patrons of both roads will be advantaged in point of cost of transportation, enlarged fields of operation and service. These advantages cannot be reduced to specific dollars and cents but their existence can be shown. Some of them are the elimination of switching charges; interchangeability of team tracks at points of contact, such as Norfolk and Roanoke; the effect already mentioned upon car supply;

the opening of one line haul rates where the sum of locals is now paid; the milling-in-transit privilige; the reconsignment privilege; the effect in reduced rates of the long and short haul provisions of the interstate commerce act upon these two railroads as unified for operation; and the general effect upon traffic to and from the Central Freight Association territory and to the Southwest.

No Substantial Competition

"There is no substantial carrier competition between the two companies. The two lines of railroad are separated on the eastern edge of the coal fields of West Virginia, where the coal originates. In coal transportation there is no competition between the two roads. There are 109 mines served by the lines of the Virginian, one of which is served by the lines of the Virginian and Norfolk & Western. This mine is local to the Norfolk & Western and only served by the Virginian at times when the Norfolk & Western cannot give service on account of accident. The freight transportation of the Virginian for 1924 was 7,843,521 tons, of which 6,893,670 tons were bituminous coal and coke which the two roads could not compete to carry. The passenger revenue of the Virginian for the same year was $848,391, a relatively negligible amount of which was on passenger business between common points.

"Furthermore, joining the Virginian and Norfolk & Western will importantly aid that combination by supplying a much needed low grade line to tidewater and will postpone or save heavy capital investment for both the Norfolk & Western and Virginian in the future."

Statement by Former President Maher

N. D. Maher, former president and now a director of the Norfolk & Western, was the first witness called by attorneys for the railway.

"The unified operation of the two roads will save large capital expenditure naturally contemplated by the Virginian Railway to handle naturally expected increased business," Mr. Maher said, "The principal items will be double track, additional siding facilities, enlarging terminals, and increasing equipment. The electrification contemplated by the Virginian between Princeton and Roanoke, could be held up and the completed power house near Narrows could be used successfully and economically to furnish power for the extension of the Norfolk & Western electrification from Iaeger to Williamson. Another important economy would be accomplished by releasing a number of Norfolk & Western Mallet locomotives, now used between Iaeger and Williamson, for use elsewhere. The economy in the cost of operation, such as the concentration of locomotive and car repair work, and the co-ordination of facilities will amount to a very large sum. The unified operation will also result in a speeding up of merchandise traffic and the dispatch of all classes of freight to the greater convenience of the public. The capital and operating economies which can only be accomplished by railway consolidation or co-ordination affords the one practical, visible means of meeting the constantly mounting cost of railway operation.

"While serving as regional director during federal control I frequently routed Norfolk & Western coal over the Virginian tracks between certain points and the return empty cars to Virginian mines over part of the Norfolk & Western tracks, estimated that this would effect an annual saving of over $1,000,000 and so reported to the Railroad Administration in my annual report for 1918. As explained in this report, the purpose was to hasten movement, release for other service a number of Norfolk & Western locomotives, and economize operation. The two railroads were under me as regional director but were not unified in operation as they would be under the proposed lease. Each railroad during federal control had its own federal manager. The tracks for running the Norfolk & Western trains onto the Virginian were not convenient to head the trains in, made up and ready for passage over the Virginian. If the lease is approved, appropriate tracks for this purpose will be constructed and the operation would be made easy and economical. Also the federal manager of the Norfolk & Western did not control the movement on the Virginian, which was controlled by the federal manager of that road. This lack of unified control caused a slowing up of the Norfolk & Western tonnage trains on the Virginian which would be avoided by real unification of operation and control such as would be adopted under the proposed lease."

Speaking of the supposed advantages of the service of more than one railroad to an urban community, Mr. Maher added:

"There doubtless are cases in which bringing in new railroad competition is important and helpful. But in general my experience has been that the successful development of a town or city depends not upon the number of carriers but on having at least one effective railroad with connections in all important directions. Until 1909 Roanoke, Va., was a one-railroad town, but its commercial and general development was rapid. So with Bluefield, W. Va., which is today and always has been a one-railroad town. Each of these cities have developed more rapidly than some Virginia cities with from three to six railroads. My belief is that this lease will operate with advantage to the city of Norfolk, the port of Hampton Roads and the cities, towns and rural districts served by both roads.

Future of the Virginian

"Up to this time the Virginian has been developed only as a coal road with most of its tonnage going to tidewater. The projectors of the Virginian have continued this policy. They have built a low-grade line, capable of a low cost haulage, and it was their only chance to increase their earnings so as to cover fixed charges and afford dividends. In locating this low-grade line they paid little attention to reaching towns or cities and gave little or no attention to the developments of the territory through which they ran. On the other hand, the policy of the Norfolk & Western has been one of general development in all directions and local development was given special attention. The Norfolk & Western also built or acquired lines not only from Hampton Roads to Columbus, but also reaches Cincinnati, Ohio, and Bristol, on the Tennessee line, and acquired the two lines to the south, Roanoke to Winston-Salem and Lynchburg to Durham. These, with Shenandoah Valley line, Hagerstown to Roanoke, enable the Norfolk & Western to handle north and southbound business, traffic from the east to the west, the northwest, the southwest and the southeast.

"If the lease of the Virginian is approved by this commission this development policy of the Norfolk & Western will be extended to the Virginian and every effort made to develop business of all kinds originating on or destined to any point on the Virginian, and to and from the Port of Hampton Roads by that railroad. All of which will be in the interest of the public."

Other Testimony

Representatives of the state of Virginia, the city and port commission of Norfolk, and the Baltimore & Ohio and Chesapeake & Ohio appeared in opposition to the application but it was arranged that a 30-day recess should be taken before the cross-examination of the Norfolk & Western and Virginian officers who testified.

Results of Store Door Delivery in England Analyzed

American railway officers conclude that it should be limited in this country at present

WHILE the widespread practice of store door delivery in vogue on the railways of Great Britain seems to be adapted to their needs, those methods cannot be employed successfully in the United States where store door delivery should be limited in the beginning to those places where local conditions require it and it should be developed gradually in accordance with the result of these experiences. On account of the variations in demands for cartage service by shippers and receivers of freight in the United States, the railways should not undertake to equip themselves with vehicles and other facilities necessary for this service, but serious consideration should be given to the employment of the American Railway Express Company as the cartage agent. If for any reason it is not deemed advisable to employ the express company to perform cartage service, responsible hauling concerns should be employed.

The foregoing conclusions are based upon a study made by a number of American railway officers of practices in Great Britain during the past summer and are contained in a report prepared by J. W. Roberts, general superintendent of transportation, and H. E. Newcomet, general superintendent of the Pennsylvania, covering this service on the London, Midland & Scottish, The London & North Eastern, the Great Western, and the Southern railroads of Great Britain. The report was prepared from information collected in an investigation made by G. A. Harwood, vice-president of the New York Central; S. Withington, electrical engineer of the New York, New Haven & Hartford; C. F. Smith, general superintendent of passenger transportation of the New York Central; G. J. Ray, chief engineer of the Delaware, Lackawanna & Western; S. T. Wagner, chief engineer of the Reading, Mr. Newcomet and Mr. Roberts, while they were in London attending the International Railway Congress.

The Conclusions of the Committee

In addition to the conclusions indicated above the committee made a number of other observations regarding the practicability of store door delivery in this country as follows:

Except to a limited extent in New York and certain other of the larger cities of the United States, conditions in this country which control or even affect in a large measure the operation of railroads in meeting the demands of commerce, are radically different from those which control operations of the railways of Great Britain. Maintenance of collection and delivery (cartage) service on a broad scale by the latter is a necessity, whereas that form of service in a limited measure by American railroads is at present a necessity as a progressive step—means of effecting economies and expediting movements of traffic by minimizing congestions on public highways and at freight stations through the concentration of traffic and by more effective regulation of road vehicles than is possible when such service is performed in its entirety by various interests.

Initial operations as well as subsequent steps in the development of cartage service should be predicated upon results of a thorough analysis of traffic which would be involved, to determine kinds, volume, routings, possible consolidations, elimination of cross movements, duplicate handling, etc., for the purpose of economy and other advantages, without altering the competitive situation as it applies to different roads.

Cartage service should be limited in the beginning to the hauling of freight traffic (except perishable) which is handled over freight station platforms.

Delivery limits should be established and zoning of the delivery area determined whenever conditions require.

Such costs of service should be determined as will form the basis for an average rate to apply to collection or delivery, each of the different railroads involved, within designated limits.

As an ultimate objective a shipper or receiver accepting cartage service of a railway should do so on a one hundred per cent. basis.

In all places served by more than one station, the cartage plan should be developed with the view to reducing the number of receiving and delivering operations.

The Extent of the Service in Great Britain

In its study of this subject the committee gathered a large amount of data regarding the magnitude of the service rendered in Great Britain, the organization which has been created to perform it and the method of administering it. Thus it was found that a total of 27,048,639 tons of freight was handled in the collection and delivery service by these roads during the 16 months ending April, 1925. Of this amount the London, Midland & Scottish handled 16,851,479 tons, the London & North Eastern 4,544,662 tons; the Great Western 4,053,000 tons and the Southern 1,599,518 tons. The total of all traffic handled for 1924 by the four roads was 408,777,807 tons. The total mileage of these roads is 20,263 miles or 7,534 miles, 6,722 miles, 3,797 miles and 2,210 miles respectively.

The freight handled in this service is largely l. c. l., and includes all kinds of commodities. Perishable freight is handled in such a manner as to avoid refrigeration service of any kind during cartage. Small consignments and individual packages predominate. During an observation period at one station which handles 52,000 tons per month, the average weight of a consignment did not exceed 350 lb. and the average weight per package was less than 90 lb. The average weight per consignment at 121 stations which handled 3,765,721 tons of freight including livestock during the month of August, 1924, was 454 lb.

Store door delivery in Great Britain at first did not extend beyond the transporting of merchandise from the place of business of the consignor to loading stations of railways and from rail destination stations to the consignee's place of business. At the present time it also embraces the transportation of merchandise between places of business, residences, docks, wharves and private sidings as well as between these places and railroad stations. This service is rendered at both originating and destination stations. It is subject to collection and delivery rates, covering rail and cartage service, or station

to station rates in which case it is handled in collection and delivery service at an additional charge based on the requests of consignors or consignees.

This cartage service is performed by the railways with their own facilities to the extent that consignors and consignees desire it. Exceptions occur when, due to light traffic, conditions peculiar to a locality or district, or frequent fluctuations in the volume of merchandise, advantages accure from the employment of agents who perform the service at agreed rates of compensation. In 1924 agents handled 6,408,291 tons of freight for the four railways which was 23 per cent of the total freight handled by the roads under this class of service. On the London, Midland & Scottish they handled 1,548,777 tons or 12 per cent of the road's total freight tonnage. On the London & North Eastern the amount was 3,462,698 tons or 53 per cent; on the Great Western, 1,155,000 tons or 37 per cent and on the Southern, 241,816 tons or 20 per cent.

Facilities for This Service Are Extensive

The facilities for this service on the four roads embrace 18,774 horses, 2,132 road motor trucks, and 32,428 horse-drawn wagons. In addition there are stables and garages with facilities for the proper care of equipment besides the freight stations and forces. Besides horse-drawn and motor trucks, Fordson tractors are used for hauling trailers over comparatively long routes. A few steam-operated motor trucks are used for the movement of long haul traffic where there is little interference from the operation of other vehicles.

Rates Conform to Law

The standard freight rates must conform to the requirements of the law, although this law does not name any limitations relative to charges for collection and delivery service except that they must be reasonable. Rates are subject to approval by the Railway Rates Tribunal only when they are more than 40 per cent or less than 5 per cent below the standard rates. However, exceptional rates as well as collection and delivery rates must be filed with the Minister of Transport. It is estimated that 75 per cent of all freight traffic which produces 60 per cent of the gross revenues from the transportation of freight traffic is subject to the exceptional rates which are lower than the standard rates. Railroads have been permitted to perform collection and delivery service on request when the freight traffic to be handled is subject to station to station rates. In this case they are allowed to asses reasonable charges for the service.

Collection and delivery rates named by present tariffs are not divided between rail and collection and delivery; rail and collection; or rail and delivery. When shippers perform the collection and delivery service, allowances are made. These vary according to the classes of goods involved, the distance carted, etc. Collection and delivery charges are based on (1) receipts in the nature of earnings from the transportation of freight traffic, (2) the cost of the service, considering the distance the freight is hauled and the delay to vehicles caused by the congestion of the route, (3) the nature of private sidings, (4) the exceptions to standard practices, (5) the rates charged by competing truck operators. A collection and delivery charge in theory is supposed to cover the full cost of cartage and all other handling, including loading or unloading of road vehicles and incidental clerical expenses.

Vehicles Have Specific Assignments

Vehicles are assigned specifically to each of the two classes of commodities but are changed according to the fluctuations in the volume of traffic or the demands of emergencies. Movements of road vehicles conform to definite schedules and routes which have been established on the basis of the results of experiments and surveys of traffic receipts and deliveries for long periods of time. Motor trucks including steam trucks are assigned to the longer routes, to districts where a large volume of traffic must be collected or delivered daily and to places where the interference from the congestion of street traffic is not frequent or serious. Horse-drawn wagons are utilized for the shorter hauls, for the more congested routes in the larger cities and for the collection and delivery service in smaller towns where such service is not rendered by local contractors.

The tour of duty of each road vehicle at the larger stations covers a period of eight hours each service day except Saturday. However, the time limit is frequently extended to a maximum of 12 hours. In such cases the drivers and assistants are paid for the excess time on an overtime basis which varies according to the part of the day the assignment covers. Due to the very limited freight delivering and receiving station facilities in many of the larger cities, the plan of operation of each requires a clean-up of inbound and outbound freight daily. Road vehicles start from most of the stations in the large cities on their tours during the morning hours and arrive at the stations during the late afternoon and evening. Some operate at night to handle certain classes of perishable merchandise.

The limits of operation of road vehicles are based on distances, the character of traffic, competitive conditions, physical or other restrictions and the extent to which public highways are utilized. On the London, Midland & Scottish records of four weeks in February, 1925, show that the average mileage per vehicle other than horse-drawn varied between 9 and 22 for electric trucks operating out of six stations. It varied from 13 to 29 for steam-driven vehicles at four stations and from 10 to 32 for gasoline-propelled vehicles at 26 stations. On the London & North Eastern the average for electric trucks at one station was 14 and for gasoline vehicles it varied between 11 and 25 for 14 stations. On the Great Western electric vehicles averaged 15 miles at one station and gasoline trucks 11 to 34 at 13 stations. On the Southern gasoline trucks varied between 8 and 31 at 8 stations.

A closing hour for the stations is adhered to at all important points. In the larger cities interested railways subscribe to agreements respecting designated closing hours. Schedules for road vehicles are so well established that shippers accept service when offered. At times, however, they exercise the right to request changes in schedules although these exceptions are exceedingly few.

Two Men Are Assigned to Each Vehicle

One man and one boy are assigned to each motor truck and horse-drawn wagon. The boy is allowed to enter service at the age of 14 as an assistant and after a period of time is promoted to driver. Very few employees withdraw from this service until they become physically disabled or reach the retirement age limit. They become very familiar with the routes to which they are assigned and maintain a friendly relationship with shippers.

In practice shippers and receivers, other than those provided with private sidings, assist road vehicle drivers in the loading and unloading of their traffic. The drivers reciprocate by delivering or accepting traffic which is destined for places beyond the limits of service intended by the rates. Arrangements are made between the railways and shippers for whom private sidings have been provided which preclude demands for rebates to cover expenses other than for cartage service on the basis that any expense incurred by shippers or receivers in loading

or unloading and in performing clerical labor, etc., which would not be required of them if the traffic were handled at freight stations is more than offset by the service and expense the railways assume in excess of those required when the traffic is handled at the carriers' own freight stations.

The compensation of employees is based largely on a fixed rate per week, the amount for drivers being $14.50, for motor truck attendants $13.25 and for boys $8.75. A bonus also is given each for the daily handling of tonnages in excess of certain limits. This plan, which is applied in conjunction with the permanency of assignments to specific routes, results in an effective solicitation agency and safeguard against freight loss and damage. Of the claim payments on all traffic which amount to from 0.5 per cent to 1.2 per cent of the gross revenues, a very small part is chargeable to cartage delinquencies.

The demand for efficiency and low cost in the handling of freight at platforms has brought about the use of a four-wheeled cart upon which the entire contents of the vehicle may be transferred in a short period of time. This cart is springless so that whether loaded or empty the height remains unaltered. By means of a crane the load which is on a flat, may be transferred from the cart to the truck or vice versa. It is possible for a truck to enter a station with a four-ton load, transfer it to a cart, proceed to another cart on which there is a load, transfer it and depart within 10 min. from the time of arrival.

Limited space which precludes expansion of facilities at some of the stations has necessitated many unusual and unique methods for handling cars and freight. At many stations turntables and transfer tables in conjunction with capstans are employed for the switching of cars in the making up of trains. At one station where the tracks and roadway are depressed and the movement of cars must be over the tracks of another railway, a daily average of 130 loaded cars are received inbound and 200 despatched outbound. Cars are switched by means of 30 turntables and a number of capstans propelled by hydraulic power. Some cars are moved as many as 12 times. At other stations electric and hydraulic transfer tables are used which slide on rails perpendicular to the station tracks.

As in the United States, the activities of operators of privately owned road motor vehicles during the last two years on public highways have affected the revenues of the railways. With the highway truck a shipper is able to handle a complete shipping transaction by dealing with one agency only while with the railway it is necessary to conduct three separate transactions. Railways must conform to standard station to station rates required by law while highway operators are not restricted on charges for the transportation of freight, nor are they subject to regulations as common carriers. This latter freedom from regulation gives them the right to select only such traffic as they desire.

A PETITION for an injunction has been filed in the East St. Clair county circuit court at Belleville, Ill., by the Chicago & Alton, against the Superior Motor Bus Company to restrain it from operating a new line between St. Louis, Mo., and Jacksonville, Ill. The bill alleges that the bus company is now operating buses between Jacksonville and East St. Louis and intermediate points without a certificate of convenience and necessity from the Illinois Commerce Commission. It is further alleged that the competition is injurious to the railroad company's business. The Alton has also asked for an injunction in the circuit court at Bloomington, Ill., to restrain the St. Louis & Chicago Motor Co. from operating buses along state route 4 between Chicago and St. Louis, Mo.

Nickel Plate Hearing

WASHINGTON, D. C

THE hearing on the Nickel Plate unification application, before Commissioner Meyer of the Interstate Commerce Commission, which was begun on April 15, is nearing its close. When an adjournment was taken on October 10 to October 14, H. W. Anderson, counsel for the Scott protective committee representing the protesting minority stockholders of the Chesapeake & Ohio, announced that he expected to conclude his presentation perhaps by the end of the week but a further postponement was taken until October 19. Mr. Anderson has not thus far presented any witnesses of his own but has subjected the Nickel Plate witnesses to protracted cross-examination and re-cross-examination during which he has brought out a mass of statistical data and copies of documents bearing on the financial transactions involved in the case. He then had the commission call as witnesses several officers and directors of the companies involved in the proposed unification and was expected to follow this with some statistical testimony of his own. He also said he would attempt to obtain the testimony of J. R. Nutt, president of the Union Trust Company of Cleveland, who has been closely associated with the Van Sweringen brothers and who is sometimes referred to as "the man higher up."

A bill in equity filed by the Scott committee asking that officials of the Chesapeake & Ohio be restrained from leasing the road to the Nickel Plate was dismissed by Judge Moncure of the Chancery court at Richmond, Va., on October 13, on the ground that the Interstate Commerce Commission has full jurisdiction in the matter. Counsel for the committee announced that they would appeal.

Questioning of W. J. Harahan, president of the Chesapeake & Ohio, was completed on October 9. Most of the questions were argumentative, as to facts and reasons which actuated him in recommending and voting for the acceptance of the Van Sweringen proposal by the Chesapeake & Ohio and as to whether he had given sufficient consideration to the rights of the stockholders of the company after the Van Sweringens had gained control. He was particularly pressed as to why the Nickel Plate stockholders are not required to exchange their stock for that of the new company, which is to the treasury of the Nickel Plate in consideration of the proposed lease, and as to why the Nickel Plate retains its treasury assets when those of the Chesapeake & Ohio pass to the new company under the lease, but he insisted that these provisions are not unfair.

He was also questioned regarding the declination of the directors of the C. & O., in May to increase the dividend rate from 4 per cent at the request of many of the stockholders and as to whether the real reason was not a letter written by O. P. Van Sweringen saying that any increase in the dividends of any of the companies proposed to be leased would be regarded as an act of bad faith pending the completion of the unification plan. He said the directors were justified in not increasing the dividend by all the circumstances and would not say whether the Van Sweringen letter would prevent an increase in dividend regardless of any increase in earnings. Thomas B. Gay, of counsel for the C. & O., minority stockholders, took the position that the stockholders had been prevented by the Van Sweringen control from participating in the increase in C. & O., surplus. Mr. Harahan said he was not familiar with the exact reasons for the transfer of C. & O., funds to other banks from which the Van Sweringens were receiving loans. He denied telling Everett Jacobs, a stockholder, that he was not in sympathy

with the Van Sweringen plan or that he did not think it fair to the C. & O. He said he expected to remain in charge of the operation of the C. & O., and Hocking Valley and had discussed with Mr. Van Sweringen the advisability of preserving the autonomy of the C. & O., but that he had not been given any promise of any kind. He was also questioned by A. I. Stiles, an intervener, and E. C. Bailly, representing stockholders of the Hocking Valley, who apparently tried to get Mr. Harahan to admit that he had shaped his views to conform to those of the Van Sweringens.

Frank H. Alfred, president of the Pere Marquette, was questioned briefly regarding his connection with the formulation of the unification plan. He had first been definitely informed of it at a conference in New York attended by many directors of the Pere Marquette, after which he had made a report on the proposal and the directors had appointed a special committee to investigate the matter. According to previous testimony this committee was able to obtain better terms for the Pere Marquette stockholders than had originally been offered. He identified a copy of his report and a set of statistical statements which he had prepared to show the effect of the plan on the Pere Marquette. He then told of his participation in conferences as to the joint use of facilities, but declined to be led into any criticism of the estimates of savings in expenses that had been made by J. J. Bernet, president of the Nickel Plate. Asked whether he would have sold government bonds held by this company to put the funds in banks at 2 per cent he said he would prefer to keep the money in government securities until it was needed.

H. W. Anderson, of counsel for the protestants, had asked for the testimony of F. D. Underwood, president of the Erie, but announced that as Mr. Underwood was not well he would not insist on his appearance unless it seemed necessary later.

W. J. Louderback, a director of the Chesapeake & Ohio, testified that he had considered the plan purely from the standpoint of an investor in the C. & O., and had offered the resolution for the adoption of the plan. Otto Miller, of Cleveland, a director in the Nickel Plate and the C. & O., was questioned regarding the real estate transactions in connection with the Cleveland terminal, from which the Van Sweringens are expected to make some large profits from the air rights, after allowing the terminal company an easement over lands they had acquired, at approximately the cost of the lands. Mr. Miller said, as Mr. Van Sweringen had previously testified, that the Van Sweringens had assembled the property over a period of years, after they had originally bought it for a traction terminal, and that it had become much more valuable than its original cost.

Commissioner Meyer asked the witness about the allegation that "the railroad enterprise had been devised to rescue a failing real estate enterprise." Mr. Miller said this is not true and that there was no connection between the two except that the Van Sweringens' purchases of real estate had led to their becoming interested in the Nickel Plate. When Mr. Anderson referred to the Nickel Plate's liability as a joint and several obligor in connection with the Cleveland Union Terminals Company bond issue of $60,000,000 he said that the Nickel Plate's interest in it is only 7 per cent and that he was not going to worry about the liability as long as the New York Central is also a guarantor. He said he had studied the proposed merger from the public standpoint as well as that of the investors and that he thought the roads would "make a nice group" while the total capitalization would be reduced. When Mr. Anderson asked if the total dividends and fixed charges would not be increased he assented but said that they would be earned and that that was in accordance with the theory of consolidation. It is in the public interest, he said, to have the Erie, which is in bad condition and paying no dividends, put into a system where it can be better operated and made to pay something to the stockholders.

Mr. Miller said that the various boards when they finally voted to accept the plan had before them no figures regarding the comparative earnings of the roads except the 18 months figures printed with the Van Sweringen proposal.

Mr. Miller described in detail the purchase of the stock of the Calumet & Chicago Canal & Dock Company by he Van Sweringen interests and the sale of part of its lands in Chicago to the Nickel Plate, from which, counsel for the protestants have sought to show, the Van Sweringens made a profit at the expense of the railroad. He said Mr. Bernet had long tried to purchase some of this land for a yard at Chicago and the Calumet company had asked $4,000 an acre. As this was deemed too high the Van Sweringen interests acquired about 90 per cent of the stock of the Calumet company and then sold 431 acres to the Nickel plate at $2,750 an acre, after an independent appraisal. They also sold some other land out of the total of 1,898 acres, and had left a large part of it at a low cost. Mr. Miller said that the net cost of the property to the Van Sweringen itnerests was $2,805 an acre but that the value of the remaining lands is less than that acquired by the Nickel Plate. He defended the transaction as a good one for the Nickel Plate, which he said did not need all the land and ought not to have gone into the real estate business by purchasing the Calumet company itself.

C. L. Bradley, vice-president of the Union Trust Company of Cleveland, and a director of the Nickel Plate and Chesapeake & Ohio, said he knew of no particular reason for the different treatment of the two roads resulting from the provision that stock of the proposed new Nickel Plate company is to go into the treasury of the old Nickel Plate company instead of being exchanged for the holdings of the individual stockholders but said he did not see that it made any particular difference. Mr. Anderson then questioned him to show that the present control of the Nickel Plate is in the Vaness company, and that it will also control the new company, that there are only four stockholders of the Vaness company, O. P. and M. J. Van Sweringen, Mr. Bradley and J. R. Nutt, president of the Union Trust Company. The stock of the Vaness company, Mr. Bradley said, is deposited with the Union Trust Company under a trust agreement, the four men mentioned being the managing trustees under a trust agreement to run for 21 years after the death of the last of the original trustees, with a provision for the election of a new trustee in case of the death or inability of any two of the trustees. Mr. Van Sweringen had previously testified to the existence of this trust agreement, which he said had been made to protect the situation because both he and his brother were without heirs. W. A. Colston, counsel for the Nickel Plate, had stated that Mr. Nutt was traveling in the west and could not be reached to testify in this proceeding. Mr. Anderson asked Mr. Bradley for the name of Mr. Nutt's secretary and said he would make an effort to locate Mr. Nutt so that he might be called on to testify if possible before the hearings are closed.

When the hearing was adjourned on October 10 to October 13 Mr. Anderson said he expected to conclude the presentation for the Scott committee by the end of the week and Commissioner Meyer asked that both sides then give an estimate of the time desired for argument. Mr. Bailly said he had some witnesses to present for the Hocking Valley.

Looking East from the West Fourth Street Bridge Showing the Material Track Laid Across the Bridge from the Shovel Cut at the Right—the Old River Channel Is Seen in the Left Background

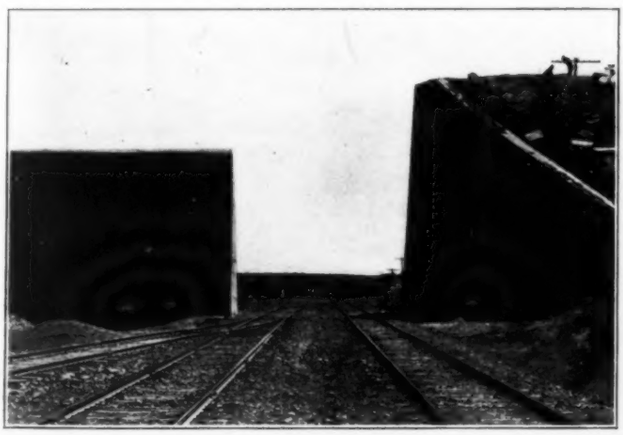
Rail Terminals Rebuilt at Pueblo

Properties of Denver & Rio Grande Western reconstructed to make room for large flood prevention channel

By O. L. Hoebel

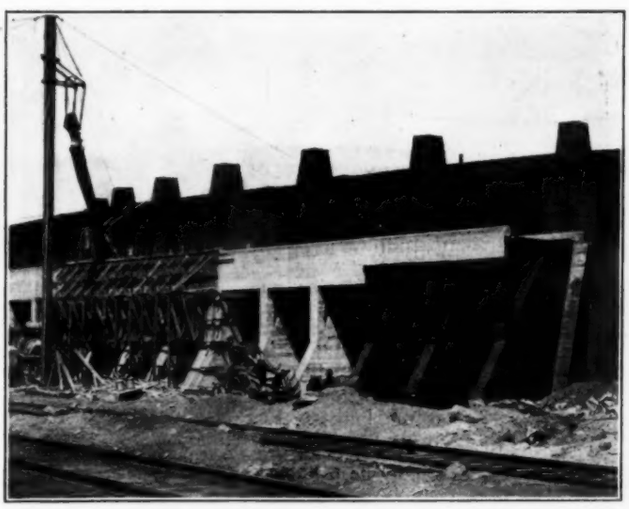
Formerly Railway Engineer, Morgan Engineering Co., at Pueblo, Colo.

ON June 3, 1921, when a flood in the Arkansas river wrought such fearful havoc at Pueblo, Colo., the railroads were among the principal losers of property in the devastated area. It is not surprising, therefore, that the project for flood control work at Pueblo, which is now nearing completion, should embrace extensive changes in the physical layout of the railroad terminals in that city, and that the railway reconstruction should be definitely linked with the building of the channel, levee and other features of the flood protection plan.



Gap in the Retarding Dam West of Pueblo for the Double-Track Line of the Denver & Rio Grande Western

The Arkansas river passes through Pueblo from the northwest to the southeast in the center of a low flat valley approximately one-half mile wide. The southwest side of this valley terminates abruptly in a rock bluff forming the edge of a mesa, but on the northeast there is no definite border to the valley as the ground slopes upward on a gradual incline to form a low hill on which a considerable portion of the city has been built. The river valley itself also embraces a considerable portion of the city's built up section and has also been subjected to an



A Reinforced Concrete Retaining Wall Was Built to Retain the Slope of the Levee Next to the Roundhouse

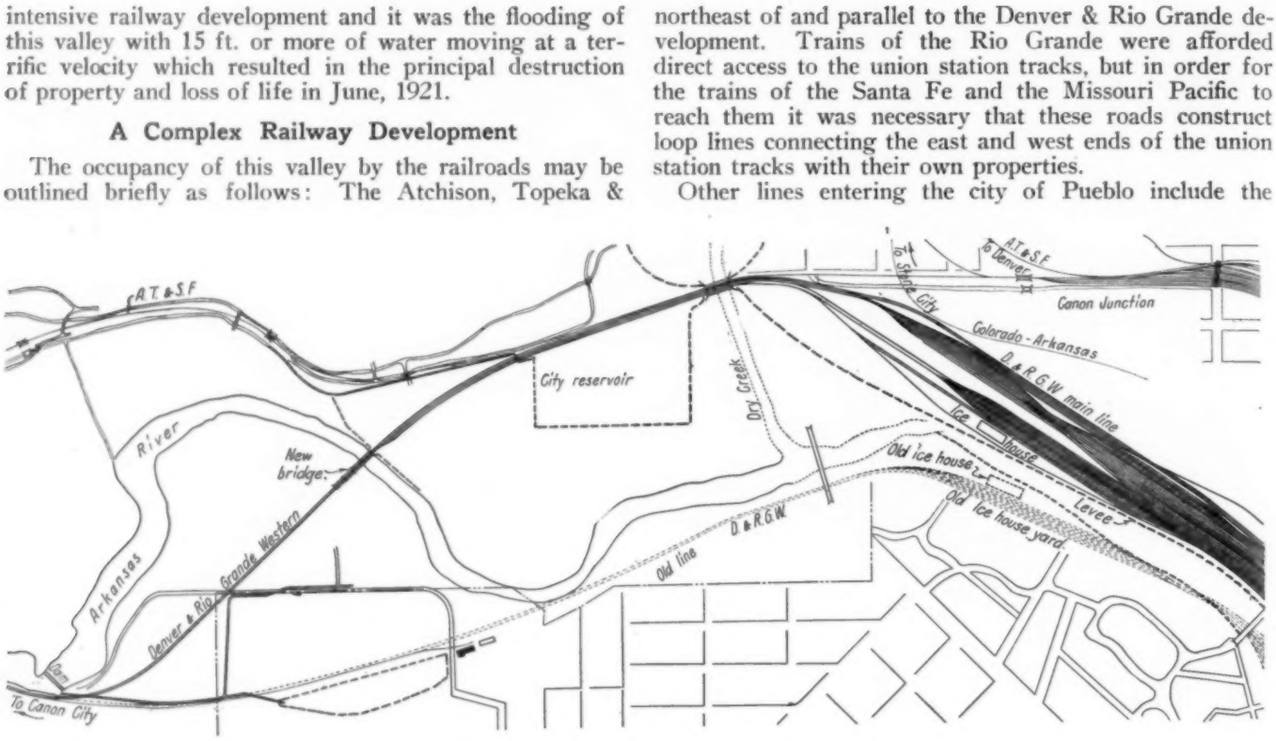
intensive railway development and it was the flooding of this valley with 15 ft. or more of water moving at a terrific velocity which resulted in the principal destruction of property and loss of life in June, 1921.

A Complex Railway Development

The occupancy of this valley by the railroads may be outlined briefly as follows: The Atchison, Topeka & Santa Fe has a main line and yards located parallel with the river along the foot of the hill at the northeast side of the valley, the line extending northward to Denver and eastward to La Junta. The Missouri Pacific's line, terminating in Pueblo, enters the city from the east with yards and terminals on the southwest bank of the river. The Denver & Rio Grande has three lines entering the city—from Salida on the west, Trinidad on the south and Denver on the north. The principal terminal development of this road comprised main lines and yards along the base of the bluff forming a connection between the Denver and the Trinidad lines with a connection to the Denver line by means of a development perpendicular to the bluff layout which included an engine terminal and what is known as the Walker yard. The Denver line entailed a bridge across the river and grade crossings with the Missouri Pacific and Santa Fe lines.

The layout was further complicated by the union depot property comprising station buildings and tracks lying just northeast of and parallel to the Denver & Rio Grande development. Trains of the Rio Grande were afforded direct access to the union station tracks, but in order for the trains of the Santa Fe and the Missouri Pacific to reach them it was necessary that these roads construct loop lines connecting the east and west ends of the union station tracks with their own properties.

Other lines entering the city of Pueblo include the Colorado & Southern and a minor line known as the Colorado & Kansas.



West End of the Pueblo Terminals

Locate New River Channel Through Railway Yards

An exhaustive study of the problem of avoiding a recurrence of the disaster at Pueblo through control of flood waters led to the development of plans for a small retention dam about six miles above the city and the construction of a new channel for the river through the city along the base of the bluff on the southwest side of the valley, the channel being bordered on the side away from the bluff by a levee of suitable height. As the location selected for this channel was coincident with the most intensive terminal development of the Denver & Rio Grande Western in the city, the property of that company was affected more than that of any other road and required extensive relocation and reconstruction. It entailed the relocation of its main line from the union depot to a point 2.6 miles west and from the union depot to Rush street

Looking Northeast Toward the Denver & Rio Grande Western Engine Terminal. The Coaling Station in the Center of the View Was Built to Replace the One at the Left Which Had to Be Removed to Make Way for the Channel

on the Trinidad branch. In addition, all of its yards were removed or rendered useless as switching yards.

These yards consisted of five scattered units that had grown gradually without a definite design as a whole and consequently were inefficient and expensive to operate. A description of the different units follows: The "Walker" yard, located north and east of the roundhouse, consisted of coach repair, storage and switching tracks. The coach and repair tracks had a capacity of 185 cars and the storage and switching yard tracks a capacity of 700 cars, making a total of 885 cars. Practically all trains from the south were received and classified in this yard. On account of heavy grades and sharp curves at the south end most of the switching was done at the north end where it was necessary to cross the Missouri Pacific track and use a main line track as a switching lead. This condition, together with the limited lengths of the tracks, made it an awkward yard to operate. This yard is the only one that is not entirely removed, it being necessary to remove the south end only, leaving stub tracks with connections to the north. It is no longer used as a switching yard, the tracks formerly used for this purpose being used as repair tracks.

The "South" yard was located south and west of the roundhouse and consisted of two tracks on the north and five on the south side of the main line of the Trinidad branch, varying in capacity from 22 to 30 cars each. It was used for classifying southbound trains. The extreme south track with a connecting track in the "depot" yard had a capacity of 58 cars and was used for a departure track. The total capacity of this yard, not including the main lines, was 214 cars.

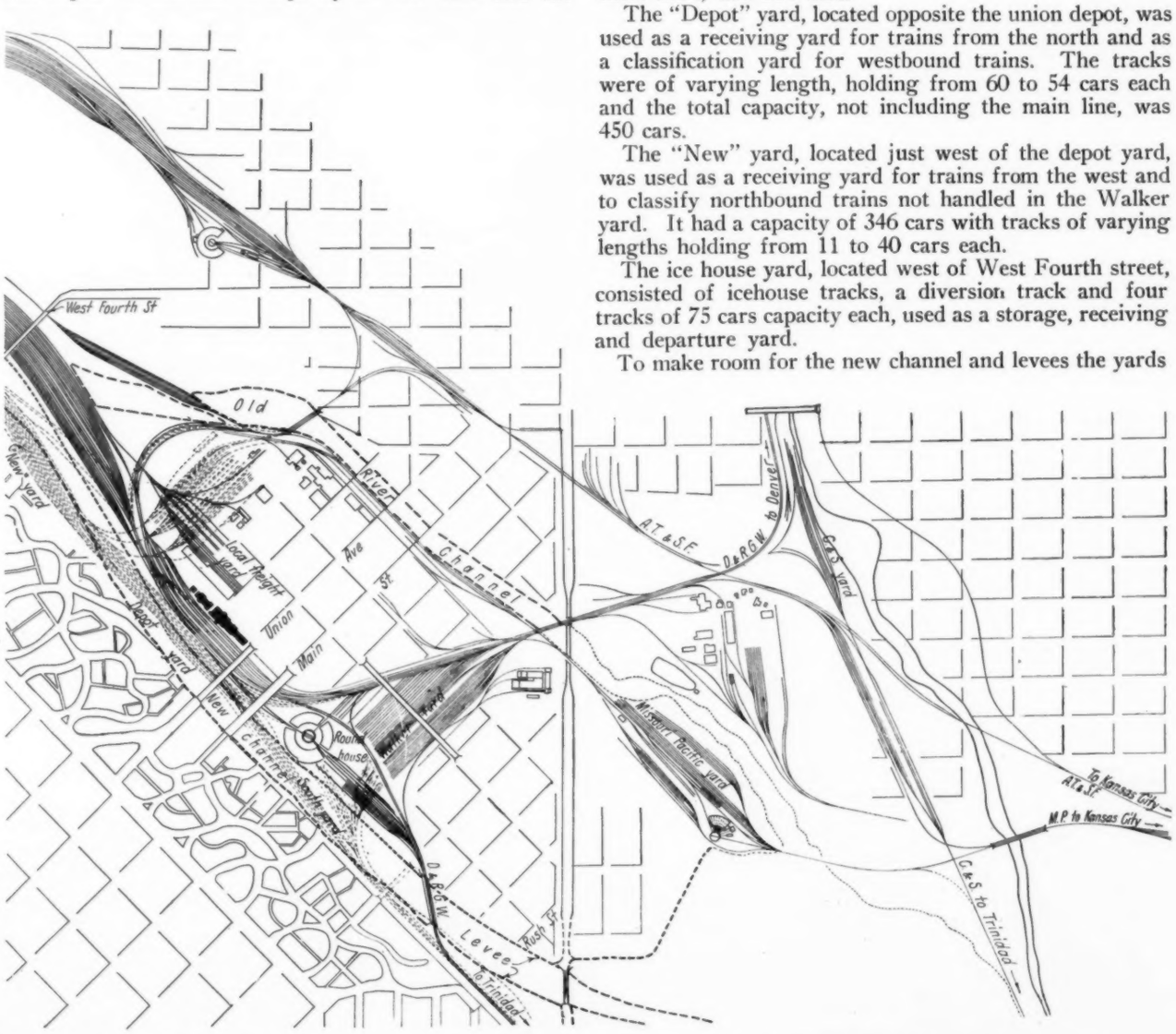
The "Depot" yard, located opposite the union depot, was used as a receiving yard for trains from the north and as a classification yard for westbound trains. The tracks were of varying length, holding from 60 to 54 cars each and the total capacity, not including the main line, was 450 cars.

The "New" yard, located just west of the depot yard, was used as a receiving yard for trains from the west and to classify northbound trains not handled in the Walker yard. It had a capacity of 346 cars with tracks of varying lengths holding from 11 to 40 cars each.

The ice house yard, located west of West Fourth street, consisted of icehouse tracks, a diversion track and four tracks of 75 cars capacity each, used as a storage, receiving and departure yard.

To make room for the new channel and levees the yards described above have been eliminated and all switching facilities of the Denver & Rio Grande Western were combined in one large yard located north of the new channel and extending from the union depot to approximately the former Dry creek crossing on the Canon City branch of the Santa Fe. This location offers a better opportunity for future expansion than would have been possible under the former arrangement.

Most of the traffic enters and leaves the yard at the east end. This includes north and southbound freight trains, Missouri Pacific transfer movements and all engine movements to and from the roundhouse, as against west freight movements alone at the west end. For this reason it was thought desirable to confine the switching to the west end



How the Railway Terminals at Pueblo Were Reconstructed to Make Room for the New River Channel—New Construction in Heavy Lines, Old Tracks Retained in Light Lines, Old Track Removed in Light Dotted Lines

of the yard as the grade also facilitated switching from this direction.

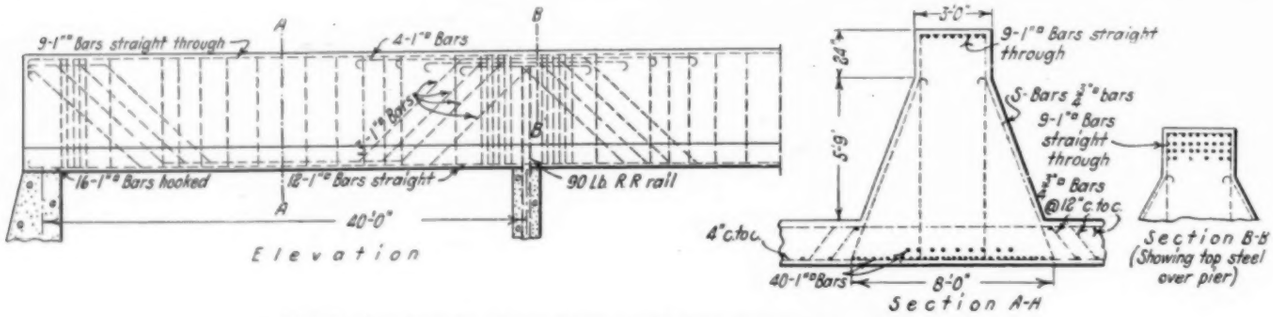
The east yard entrance consists of an eastbound and a westbound track and an extra track for switch engine movements between the yard and the roundhouse. The west yard entrance consists of an eastbound and a westbound track and an extra track connecting the switching yard with the layout yard provided west of Dry creek.

The west end of the yard, from Dry creek through the classification yard, is on a 0.5 per cent descending grade, an incline on which a car will maintain motion without being pushed into place by a switch engine. It is estimated that the average time for switching a train is 30 min., and that a switch engine with one crew on each of the two drill tracks will classify and make up all trains during the periods of heaviest business. In addition to this a crew is required at the west end to handle Santa Fe transfer and freighthouse switching and to switch cabooses off of trains from the west and place them in the caboose yard and to place cabooses in departing trains for the north and south. Except in rush seasons this engine should handle the icehouse switching. Another switch crew is necessary at the east end to handle cabooses from the north and south arriving trains to the caboose yard and from the yard to westbound trains, also to handle

located with respect to the city and are more accessible from the railroad yards as the necessity of switching across the end of the passenger yard is eliminated. A modern 16,000-ton frame icehouse was built to take the place of the old one. (This new icehouse has since been destroyed by fire.)

It was not necessary to relocate the roundhouse but a new east entrance was required to accommodate the relocated approach tracks which in turn necessitated the construction of a new coaling station, water columns, ash handling plants, wheel house and miscellaneous small buildings. The bridge and building yard was also moved and new buildings for storage provided. It was also necessary to build a concrete retaining wall adjacent to the south side of the roundhouse to keep the north slope of the levee from bearing against the roundhouse walls. The wall is of reinforced concrete of the counterfort type.

The Atchison, Topeka & Santa Fe's "loop line" was changed in alinement to connect with the relocated west end of the union depot yard, which was curved away from the new channel to avoid rock excavation on the bluff side and to gain length for the depot tracks and also greater length for the Rio Grande yard tracks. There were three Santa Fe tracks on the loop line—a main track, a layout track and a transfer track. These tracks were replaced by



Reinforcing Details of the Through Girders in the Dry Creek Bridge

Missouri Pacific transfer and bad order cars to the repair yard.

The above requirements amount to 12 or 14 switching crews daily as against 20 or 22 crews required under the former conditions.

The capacity of the new yard is as follows:

North and south receiving	8	tracks	640	cars
West receiving	4	"	320	"
Classification through business	12	"	300	"
Classification exchange and local	8	"	290	"
North and south departure	5	"	400	"
Westbound departure	3	"	240	"
Caboose	3	"	60	"
Total	43	"	2250	"

Other Changes Required

The relocation of the main line west adds 1,566 ft. of distance and 3 deg. of curvature. A much better line could have been had by locating it approximately parallel to the Canon City branch of the Santa Fe. This would have necessitated the construction of a longer line at somewhat greater cost, which under usual conditions would have been justified. The officers of the conservancy district, however, maintained that the disadvantages in the line as built were more than compensated for in other ways.

The relocation of the main line from the depot east to a point across the new channel on the Trinidad branch is on slightly improved grades and alinement. The local freighthouse and yards relocated near the union depot are better

two tracks—a main line freight and a main line passenger track. The need for the transfer track was eliminated by the construction of the new transfer yard which also takes the place of the two interchange tracks formerly located within the loop.

The new plan was so designed as to permit the Santa Fe to construct a passenger line from the union depot to Canon Junction, located north of and approximately parallel to the new Rio Grande yard. The future construction of this line will make it possible to discontinue the use of the loop line and main line through the Santa Fe freight yards for passenger traffic, provide a shorter line and eliminate passenger trains from street crossings. These changes will be decidedly advantageous to the city as well as to the railway.

On the Canon City branch the Santa Fe line was shifted for a distance of about 2,700 ft. west from Dry creek to provide space for the Rio Grande tracks between it and the north side water works settling basins. The channel change eliminated the need of two single track Santa Fe railway bridges over the old channel and in the case of the loop line bridge allowed for a grade reduction.

The Missouri Pacific loop line was changed slightly in alinement to connect with the relocated west end of the union depot grade. There were two Missouri Pacific tracks on the loop—a main line track and a transfer track. This transfer track, together with the interchange tracks formerly within the loop, are replaced in the new transfer yard. The channel change eliminated the need of a single track Missouri Pacific railway bridge over the old chan-

nel. The west end of the union depot passenger yard was curved to the north to save rock excavation. This was compensated for by an increase in track lengths. The Colorado-Kansas line was relocated to the north of the new Denver & Rio Grande Western yards from a point near the new transfer yard to Canon Junction.

Several New Bridges Were Built

In addition to the street viaducts crossing railroad tracks and miscellaneous small bridges and culverts the

Looking East Along the Site of the New Channel. D. & R. G. Engine Terminal in the Background Beyond the Viaducts

project called for three railroad bridges of considerable size. One above the town on the Denver & Rio Grande Western comprises four 100-ft. spans of double-track through plate girders on concrete foundations. Another across the new channel on the Denver & Rio Grande Western's Trinidad branch is a double-track bridge of two, 180-ft. spans on concrete foundations. This bridge is on a 42-deg. skew and a 1.42 per cent. grade. The third railroad bridge is the one at Dry creek and is a four-track reinforced concrete bridge of five, 40-ft. spans.

This is an unusual structure in that it forms a retarding dam for Dry creek flood waters in addition to supporting the railroad tracks—three of the Rio Grande and one of the Santa Fe. With the usual type of bridge it would have been necessary to elevate the railroad grade about seven feet at this point to provide a waterway of sufficient capacity. This would have greatly increased the railroad embankment quantities and would also have presented a difficult problem in the way of grades through the new Denver & Rio Grande Western yards. It was therefore decided to build a bridge in the form of a trough through the levees, the outer girders of which connect with the levees on either side of the stream, forming a retarding basin in which the water will impound to a head sufficient to increase the velocity of the flow through the bridge opening and thus develop the required capacity.

A Complex Construction Program

The development of a construction program imposed several difficult problems. The grading plan provided for the use of the material excavated from the new river channel in making the fill for the yard and the levees, but the excavation of the channel in the area occupied by the old Denver & Rio Grande Western yard could not proceed until new yard tracks were constructed to take the place of the old tracks removed on the site of the channel. This made it necessary to proceed first with the channel excavation from such parts of the new channel as were not occupied by existing tracks. As the material from channel excavation above West Fourth street and below the Walker yard was required for levee construction, that to be used for railroad embankments was limited to the area between West Fourth street and Union avenue, where it was available on the bluff side. This material, which was principally shale was excavated with a steam shovel.

Another problem was to transport this material to the new yard without interference with the operation of the D. & R. G. W. main tracks and yard, which lay between the channel and the new yard. This was solved by supporting a narrow-gage track against the side of the bluff to connect the shovel cut with the south end of the West Fourth street bridge so that this bridge could be used by the material trains to cross over the railway tracks in making the trips to and from the yard.

The grading program was further complicated because the river traversed the site of the new yards, crossing it diagonally at three different places. This situation was taken care of by bridging the lower crossing with pile structures that supported all new tracks and by filling the upper two crossings after diverting the river through a partially completed channel above West Fourth street. This, however, could not be done until October when the danger of high water had passed. As a considerable part of the railroad yard embankment which aggregated 400,000 cu. yd. was placed in river crossings, it was neces-

The Reinforced Concrete Through Girder Bridge Across Dry Creek

sary to complete this fill as well as the track laying and ballasting between October and the following March, when the new yard was put into service. This required that most of the ballasting be done in winter months, working two and sometimes three shifts, and as the available ballast was wet gravel the cost of doing this work was necessarily high.

The old union depot yard and loop line tracks interfered with the completion of the east end of the new yard. To make the yard available for use before moving these tracks, a temporary ladder and main line connection to the east and south, also temporary connections to the old local freighthouse, were built and the yard put into use. This permitted the removal of enough of the old tracks so that the channel excavation and levee construction could be continued without interruption.

With the traffic moved to the new yard, the completion of the local freighthouse and yard and alterations to the Walker yard, engine terminal, union depot yard, loop line and main line south were next carried out. This released the remaining area required for channel excavation.

The total cost of the entire project was $4,500,000, half of which is being paid through general taxation by the city and county. The other half of the cost was assessed against the property directly benefited which was that included within the wetted area during the flood of June 3, 1921. To determine the amount of the benefits to each piece of property a complete valuation of all railroad property and public utilities as well as an appraisal of private property was necessary. All the work was done by the Pueblo Conservancy District, which was formed for this particular undertaking under the Conservancy act of the State of Colorado. The officers of the district consisted of three directors: Charles W. Lee, chairman, H. G. Nuckolls, and E. W. Raber, who were local men serving without pay and who kept in close touch with all developments of the project. Edward Spruill was secretary of the board. All legal matters were handled by the firm of Rose and Kelly. The Morgan Engineering Company were the engineers. Herbert Crocker of Denver was consulting engineer on bridges and the author was in charge of the railroad work. Platt Rogers, Pueblo, Colo., had contracts for the principal railroad work.

Transportation Problems Discussed in Chicago

THE Illinois Chamber of Commerce held a Transportation Conference at the Hotel Morrison, Chicago, on October 9, at which addresses were made by E. B. Leigh, president of the Chicago Railway Equipment Company, on The Economic Relations of our Railroads to Industry; S. A. Thompson, president of the Illinois Agricultural Association, on The Railroads and The Farmer, and Samuel O. Dunn, editor of the *Railway Age*, whose subject was "Is the Railroad Problem Solved?"

Mr. Leigh attributed the development of the country, of its agriculture, of its industries, and of its commerce, to the railroads and condemned the seeming lack of inclination or ability to visualize either the importance of the railroad as a vital factor in our daily economic and social life or the disastrous results that would inevitably attend any serious or prolonged cessation of its functioning. In dealing with freight rates he said that "A given rate may be thoroughly appraised as either high or low only when compared with existing price levels generally. It is not a matter of any definite figure but merely a question of the figure that will produce a fair return. A much more important feature of a freight rate lies in its being equitable, considering all users on a parity. Viewed from that standpoint only such rates as might be discriminatory as between shippers could be in any sense unfair. The effect of an increased freight rate is greatly exaggerated in most instances. It is more often the result of a long habit of thought rather than the result of an economic disadvantage."

Mr. Thompson stated the farmer's view of the relations between transportation and agriculture to be that "Nothing but a prosperous, stable and developing agriculture will serve as a basis of permanent prosperity for the western railroads. The railroads of the west will be sound and prosperous just to the degree that farming in these districts is prosperous. Farmers on the whole are friendly to the railroads but the farmer is now thoroughly awake to the fact that he must compete with the world and see his home markets governed by prices established by the labor of peasants abroad. A prosperous agriculture will do more to rebuild railroads than increased freight rates."

Mr. Dunn considered railroad consolidation. He said that "The American people still have a serious railroad problem on their hands after 20 years of strict government regulation because they have persistently refused to carry out any consistent policy of regulation. The complete reversal within the last five years in the government's attitude toward consolidation and the failure of the Interstate Commerce Commission to so fix rates as to let the railways earn the fair return required by the Transportation Act, are striking examples of the way in which the government has constantly changed the rules of the railroad game and has failed to carry out the rules laid down by itself with the result of keeping the railroad problem unsolved and a menace to the country's welfare.

"The advocacy of compulsory consolidation legislation is necessarily based upon the assumption that the government officers who would apply the compulsion would be better judges than railway men of what consolidations should be made. In view of the fact that government officers for years tried to prevent all consolidations, how can it reasonably be assumed that government officers would now know better than railway officers just how the railways should be consolidated in order to secure the best management.

"Another assumption upon which this scheme for compulsory consolidation is based is that a few huge systems could and would be more economically operated than even our present larger systems and that in consequence great savings would be effected which would not only make unnecessary advances in rates on the western roads, for example, but would make possible large reductions of rates. This argument for consolidations is now constantly appearing in the discussions of the railroads questioned by certain public men. But where is the evidence that the consolidation of the railways into a few systems would have this result? None is advanced and as a matter of fact none can be advanced.

"The only safe policy for the nation is for the Transportation Act to be so modified as to authorize the railroads voluntarily to work out proposed consolidations which the Interstate Commerce Commission should be empowered to approve or reject upon such conditions as it may regard as in the public interest. The railroad problem will not be permanently solved under private management without a consistent policy of regulation based on sound economic principles. Compulsory consolidations would be wholly inconsistent with the past policy of the nation in dealing with railroad and other business affairs."

Regulating Commissioners Meet

Thirty-Seventh annual convention National Association of Railroad and Utilities Commissioners

WASHINGTON, D. C.

THE thirty-seventh annual convention of the National Association of Railroad and Utilities Commissioners was begun at the Hotel Mayflower, Washington, on October 13 and was to continue its sessions until October 16, the action of the association as expressed in resolutions being scheduled for the last day of the program. Members or officials of the commissions of 38 states were in attendance and all of the members as well as the heads of the major bureaus of the Interstate Commerce Commission were present during at least part of the sessions. The address of welcome was given by Col. J. Franklin Bell, chairman of the Public Utilities Commission of the District of Columbia, and the usual address on behalf of the Interstate Commerce Commission by Chairman Clyde B. Aitchison.

There was also an address on October 14 by Secretary Herbert Hoover of the United States Department of Commerce.

President Ainey's Address

W. D. B. Ainey, of the Pennsylvania commission, presided and in his annual address as president of the Association discussed some of the principal problems before the state and federal regulating commissions in part as follows:

Let it at all times be kept in mind that the service, which the public requires, is rendered not by regulatory agency, but by the utility companies, and, in order that service may be maintained at the high standard which the public requires, we should not permit these utilities to divest themselves of that managerial responsibility and duty of initiative without which adequate service cannot be obtained. There is, therefore, a line of demarcation between the duties and responsibilities of the regulatory bodies, and the managerial judgment which we must insist upon shall be continued to be exercised by public service corporations. It may be that in certain cases the line of demarcation is not clear, but adhering to the line as closely as we can, we may be assured that regulation on the one side, and management properly exercised on the other, will enable the public to receive that full measure of adequate service at reasonable charges, for which both regulation and management are permitted to have their being.

The Purpose of Valuation

We are concerned here chiefly with the part of the regulatory agencies, and among the questions which have engaged their serious attention has been the large expense which has attended the valuation of utility property in rate proceedings, an expense which falls upon the utility companies, falls upon the ratepayers, and falls upon the public service commissions. The commissions are rarely furnished with adequate funds to assume properly and fully the burdens of valuation; with respect to most of the states, the commissions would exhaust their entire annual appropriations in the conduct of one large valuation case if the financial burden was thrust upon them. I suggest for your serious consideration, that valuation is not an essential prerequisite of rate determination. In the light of all the authorities which my examination has disclosed, I have reached the conclusion that the proper place for valuation, so far as rate determinations are concerned, is a matter of defense which utility companies may set up as marking the boundaries beyond which utility commissioners cannot go in rate determination without subjecting the company property to confiscation. If, therefore, valuation of the physical property of utilities shall be relegated to a place of defense, and received primarily for the purpose of prescribing the border line of confiscation (putting a boundary beyond which commissions may not go), may not their importance and use be materially lessened and minimized by engineering and valuation witnesses?

Another observation relative to valuation may not be amiss. I refer to the lack of uniformity in concept and meaning of many of the economic terms employed. There is no unanimity among these experts as to the factors which constitute "original cost," "going concern value," or "going value," and there is definite disagreement as to the function of and, hence, basis for computing depreciation, both accrued and annual, some advocating actual investment as a base, and others present value. Somewhere along the line a clearing house for the standardization of the economic terms is required, and particularly before these "economic" terms are converted and frozen into "legal" terms by judicial decision.

It may be that appropriate committees of this association and of the American Bar Association can find some proper means whereby economic terms may be standardized as to their use and application by regulatory bodies and brought into definitive harmony with judicial judgment and expression.

The Threatening Spectre of Compulsory Consolidation

The threatening spectre of compulsory railroad consolidation still hangs suspended in the federal law. Despite the best efforts of the Interstate Commerce Commission to make progress with the congressional mandate, about the only result has been to demonstrate the unworkableness of the law, and to precipitate a stalemate and effectually postpone any consolidations, voluntary or otherwise. The outlines of the staggering task have been brought into full relief by the hearings before the commission, and it is not too much to assume that even the most vigorous proponents of the plan have come to realize its futility. It is not my purpose to set down here the many objections to mandatory mergers of railroad properties. Railroad consolidations are not a panacea for the ills that beset transportation. If it is a matter of relief for so-called "weak sisters" there is a much more direct and practicable method. Legal approval for voluntary mergers, fashioned on sound economic lines and far-sighted business judgment, would be proper and desirable, and the law should be amended to so provide, with the necessary provision for the preservation for future use of the vast amount of data already accumulated by the I. C. C.

Chairman Aitchison's Address

Chairman Aitchison outlined the history and development of transportation in the United States and concluded as follows:

The process goes on. The turnpike displaced the pack train and carter; the railroad displaced the canal boat, the inland steamer, and the plank road. The electric railway threatened the short-haul business of the railroad, and in turn has been seriously threatened by gas-propelled vehicles, large and small, operating on the pikes and highways of to-day. New forms of power and new modes of applying power have renewed transportation on the seas, through canals such as were not possible a century ago, or upon highways which extend everywhere, and surpass any turnpike of former days. We carry freight and passengers through the air. The railroad displaced its less efficient rivals; but now its field of service has been invaded by improved forms of service afforded by its ancient competitors, and the financial stability of the railroad has been impaired. It has been forced to yield to its rivals certain territory and certain forms of business; or else has had to follow the precedents of a century ago, by combining its own particular forms of

service with those given by its rivals. Railroads now operate ocean and river steamships and canals, and use the public highways and streets for motor buses and trucks as auxiliary to or substitutes for their regular forms of railroad service. Instead of the railroad's station marking the beginning and end of its common carrier service, the farm, the factory, the store, and the residence may soon be reached directly.

The technique of railroad operation has changed, and will change. What form of motive power will the near future require? With rising costs of coal and with current demands for haulage, we may doubt whether the railroads will continue to carry 5 percent. of their total tonnage as mere fuel for themselves. Already fuel oil has displaced coal to a considerable extent. Will the superpower projects result in the conversion of the coal into electric power at the mine's mouth, and free for other uses a most considerable fraction of the equipment and tractive power of the rail system? What is the future of the Diesel engine? We may not say it will not largely supplant many of the reciprocating steam locomotives.

We see around us the processes of absorptions, and the strengthening of systems, and the passing of the hopeless lines. Will there be further steps along this course? May we expect competitive and economic forces will compel the highway carriers and the airway carriers to form in huge, powerful systems, able by their financial backing and powerful organization, to meet the great rail systems in equal battle? Or will the highways, the seas, and the air in the end come under the domination of great systems operating in each medium? These are questions, and not conjectures.

The March of Progress

These considerations have vital practical application to present problems. They point to two thoughts, each of which is basic. The march of progress is inexorable; those things and ways which are economically sound and best, and those which are just and right must and will in the end prevail, no matter what artificial obstacles are interposed, or subventions given the unfit. Progress commercially expressed in economy, is ruthless; it destroys the unfit without mercy or outward signs of regret. The penalty for misplaced judgment is, in the ultimate, elimination. The wise course to be shaped is that which will minimize the losses and expedite the inevitable result. To make the transition simple and economical is a task for statesmen and administrators which it is the high privilege and function of those here gathered to assist to the utmost possible. The immediate costs of progress are akin to a tax. Government can have few more important domestic functions than to endeavor to spread these costs equitably where they should be borne. If unrestricted competition, war to extinction, and the law of the jungle prevail, the strong and ruthless will cast these burdens upon the weak and the defenseless as far as they can do so directly. In a well co-ordinated and comprehensive plan, this opportunity will be minimized. To take such a course is dictated alike by economic expediency and fundamental concepts of justice.

The Essential Unity of Means of Transportation

The second thought, which depends upon the one just expressed, concerns itself with the essential unity of all forms and means of transportation as a part of the present and future life of the nation. A young nation dealing with new and untried forms of transportation could not see the overwhelming importance of planning its transportation system along national lines, which would co-ordinate all the various forms of known transportation agencies, to bring about the most efficient use possible of each by delimiting the unnecessary competition between them in construction and operation. Washington had such a view, and so did Gallatin. Even if such a view had met acceptance, the enormous expenditure required to develop and supply an adequate system where one was wholly lacking would doubtless have prevented the national plan being carried out. But no such difficulties now exist. With the experience of a century to guide us, with rail, water, highway, and air transportation systems at hand merely needing co-ordination and development, and with the nation in the most favorable financial condition of any on earth, we have no such transportation problem as was faced in 1825. Eventually inexorable economic laws will bring about the survival of the fittest, and trial and error will adapt the means to the end in the most suitable manner possible. Whether these processes will be expedited or retarded, whether they will be enormously expensive and destructive or will conserve our resources, will depend in large part upon the wisdom of the statesmanship and the administrative skill displayed by those called on to formulate and execute the policies of the nation. We can muddle through with no adequate plans or with plans merely local or provincial in their concept. But to do so will retard the development of the nation, delay the inevitable which all desire, while inflicting inferior service upon all interests and sections, and will enormously add to the aggregate of needless costs.

If any officer charged with regulatory powers thinks that the big jobs with which his commission has to deal are over, and the major portion of its work is done, he errs. We are fortunate to live in so interesting and important an era in the forward development of the world; and our opportunities for positive service within our official spheres are well nigh limitless. What we have to deal with has such novelty, complexity, and mass as to exhaust the capacity of the wisest, most indefatigable, and resourceful public officer who has to deal with transportation problems of the day, whatever his station. The problems are so far-flung in their effects that enlightened self interest would compel their study and treatment in the large, even if patriotism and a desire that we in our old age and our children after us should see a developed America did not force such a view upon the thoughtful man.

Report of Committee on Public Relations

Ernest I. Lewis, of the Interstate Commerce Commission, chairman of the new Committee on Public Relations appointed at the last annual convention, presented a report giving a general survey of the subject, which had been assigned to the committee without definition or limitation. In dealing with one phase of the subject the report suggested the application to the field of rates of the principles of co-operation between carriers and shippers in matters relating to service which has been manifested by the creation of regional shippers' advisory committees. Some extracts from the report follow:

There have been certain developments which lead to the observation that the best form of government is that which is called upon to exercise its powers least; that is to say, government which imparts ideals and that creates conditions for that understanding which leads to voluntary action. This suggests the observation that the effectiveness of regulation and of regulatory bodies might well come to be measured by minimum rather than maximum volume of litigation and direct exercise of power and by the measure of fair dealing, good service and good will that prevails.

Lack of Complaints to Commissions

An illustration, national in scope, will suffice. Nothing has strained public relations more severely than so-called car shortage. It creates the ground for bitter arraignment of the carriers for loss of profit by shippers, and similar arraignment for high and extortionate prices for consumers. It furnishes a vast amount of troublesome ammunition for those who challenge the effectiveness of the carriers and regulatory bodies. In a period when more than a million loaded cars are being moved weekly, and when previous volume of traffic records are being broken, we find the service department of the federal commission reduced to a skeleton organization. With possibly the exception of Florida where extraordinary conditions now prevail, it is probable that all commissions are receiving less complaints than at any time in the past.

There are a number of reasons for this. When analyzed, they reach back to a fundamental basis; that is—a broader, clearer understanding of the transportation problem. This better understanding extends even to the regulatory bodies which have adopted the principle employed in preventive medicine—that is, they anticipate crises and deal with them before they arrive. But back of this is a bigger thing: On the part of shippers it is fully realized now that it is essential that we have hardy well-equipped transportation companies if we are to have a healthy, prosperous, vigorous Nation. On the part of the carriers there never was demonstrated in our century of railroad operation in this country such a realization of responsibility for service, and performance of it. We have had a practical demonstration of the fact that the declaration of the act of 1920 for the creation and maintenance of an adequate system of transportation has appealed effectively to the popular mind. So much for the ideal.

Now as to the conditions created. The carriers have been encouraged to go ahead in equipping themselves in motive power, rolling stock, trackage and terminals to meet the national and local demands for service. This they have done to the extent of a billion dollars in 1923 and another billion in 1924, and expenditures in volume continue. It is possible they have been inspired to give good service by the hope that the threat of nationalization of their property, or more restrictive control, would become less menacing if their duties were faced, assumed and discharged. All along the line plant and organization have been toned up. However, good

service does not rest entirely on more elaborate plant. There are those who argue that the larger the plant the greater the opportunity for congestion. The observation is made that the carriers have to a certain extent learned the lesson of co-operation among themselves. The centralized car service bureau of the A. R. A. was an illuminating school. It was one of the inheritances from federal control. It has come to be realized that improved service lies in the realm of intelligent handling of equipment, and that intelligent handling calls for a broadening of understanding of all persons connected with transportation. In the handling of approximately 2,500,000 freight cars, 80,000 locomotives and terminal facilities effectively, there must be taken into consideration the demands of all parts of the country. This broadening of understanding has been accomplished by inviting the shippers to participate in operation. Carriers and shippers now meet voluntarily in regional conferences. These are amicable, affording personal contact of those who serve and those who are served. Jointly they analyze and forecast transportation demands. They must look beyond mere local or sectional requirements and give due regard to the shifting seasonal and commercial demands of other sections and other industries, and must forecast variations. As a result of these new public relations the heaviest traffic in the history of this country is being moved this year with less cars and fewer locomotives than used in any recent previous year. Thus the shippers and the carriers, under ideals and conditions that have been created through the channels of regulation, are voluntarily, I am pleased to report, beginning to withdraw from commissions one of the most troublesome of common carrier problems.

There has been agitation for return to governmental control and also for nationalization. We do not know what may lay in the future, but we do know that there has been brought into private operation and control of these facilities, on which our national prosperity is so dependent, a public participation in the management that has thus far produced impressively satisfactory practical results. It seems possible that the greater attainment is the setting up of agreeable contacts, the establishment of personal acquaintances, the dawn of mutual understanding between those in whose hands the transportation facility reposes and those who are dependent on it for service.

Co-operation with Shippers

This established contact possibly opens the door to opportunity for consideration of other problems and their settlement amicably and voluntarily "outside of court." In New England during the current year shippers voluntarily have gone so far as to interest themselves in the New Haven's financial problem. They, with other New England interests, sat in on its consideration and contributed their suggestions for its solution. Then they helped raise the necessary millions to put into it and behind it and underwrite it. There did not seem to have been established public relations for similar action in the case of the St. Paul, and the results have been disquieting to the country generally and distressing to the carrier's security holders.

The diverse character of freight traffic and the keen competition between shippers and industries and between the respective carriers, make freight rates and charges one of the most important sources of misunderstandings and bad feeling. The initiative in the establishment and readjustment of rates lies in the carriers. One of the most important opportunities for promoting good relations between the carriers and the public lies in improvement in arrangements for considering and disposing of proposals for changes in the rate structure.

Practically every rate is related in some manner to other rates. Changes even in the local rates of individual carriers often cause complaints with respect to other rates. Consequently it is often impossible, even for individual carriers, satisfactorily to adjust local rates without obtaining full information from other carriers and from shippers located at competing points on the line of other carriers. Such investigation and consideration is almost always vital in connection with changes in joint or interterritorial rates. Prior to federal control, no adequate arrangements to conduct such investigations were developed. During that period the director general established rate committees at various points throughout the country, composed of representatives of shippers and carriers, to consider needed changes. At the instance of the shipping public, this arrangement was continued subsequent to federal control except that shipper representation on the committees was dropped. Nominally, all proposed rate changes, whether sought by shippers or carriers, are now presented to the appropriate committee or committees, which issue public anouncement with respect to the changes proposed and afford the parties in interest opportunity to present their views, either in writing or at hearings, before action is taken. Theoretically these committees meet the necessity for co-operation between the carriers, and between them and the public, but as a practical matter the present system is imperfect. In the improvement of this system lies one of the most important means of allaying distrust and building up good will between the carriers and the public.

The principal difficulties with the present procedure may be summarized as follows: Lack of authority on the part of the committees. Inadequate personnel of the committees and their employees. Delay in consideration and disposition of subjects by committees. Further delays resulting from the fact that determinations reached by the committees can not in most cases be made effective without further consideration by representatives of the individual carriers. The fact that such committees rarely discuss subjects with the parties who appear, contenting themselves with silently listening to the presentations made, often leads to dissatisfaction with the decision rendered through lack of information as to the facts and reasons governing such decision.

Committees composed of traffic men with broad vision and authority adequately to decide controversies would prevent undue delay in settlement of the controversies and tend to reduce subsequent proceeding before state and federal regulating authorities. It is understood that many determinations reached by the committees as at present constituted are either never made effective or are materially modified by the representatives of the individual carriers arising out of the competition between them and the desire to maintain advantages for shippers located on their respective lines. To increase the powers of these committees and to afford them the necessary personnel and appropriations promptly and adequately to consider and dispose of complaints will not only lessen litigation before regulating bodies, but will go far to remove existing friction and distrust between shippers and the carriers now arising out of the delays and inadequate disposition of complaints.

The outstanding success of co-operation with shippers in the field of service, should have disarmed the suspicion of railroad rate men and made them more friendly to the same method with respect to the rate problem.

Public Relations

It seems difficult for some public service corporations to distinguish the difference in substance between sound public relations and propaganda. Public relations which are worthy of the name flower after much cultivation and, generally, slow growth. Character and a reputation for good service, good will, fair dealing, courtesy and sincerity must be established. There is nothing ephemeral about good public relations work. Personal contact is a great factor. The station agent, service man, trouble-shooter. the girl at the window where bills are paid, and the man to whom complaint is made, are the visible personal elements of the carrier or utility. Their contact with the patron can warm or freeze, or at least favorably or unfavorably affect the public. But back of them must be the direction which imparts character, establishes reputation, inspires confidence, and raises the corporation and its service to the status of an established and prized "institution." Thus public service corporations which are most successful seem to be those whose directing heads are known to be approachable, and who have and exercise a broad interest in affairs. They solicit constructive criticism and public contact. They permeate their organizations, down to the agent at the farthest station or to the smallest representative of the company, with their spirit. They prohibit petty bickerings. They try to explain to the public their business and their vital part in community life and growth in a way that can be understood. Their business policy is to be whole-hearted in their attitude and to shun trickery or misstatement as they would the plague, for they have come to realize that nothing more deeply pock-marks a corporation than proven misstatement or misleading statement. They often ask the co-operation of advisory boards of persons or organizations interested in the public welfare. They interest themselves in the growth of the community and its social, educational and æsthetic, as well as its industrial and financial development.

In one of the middle western states a commissioner sought an explanation of why it was that when the question of issuing a writ of convenience and necessity for an automobile route was before his commission, there would almost invariably be protesting people when the proposal threatened to affect adversely the business of one particular railroad. Such opposition or interest did not appear when other railroads were involved. It did not seem to be the result of momentary propaganda or mobilization. Those who appeared seemed to be there because they liked the railroad and did not want to see anything done that would injure its ability to serve them locally. They seemed to understand what competition means. The carrier is rather conspicuous as being one which, over a long period of years, has striven to impress its patrons with its sincerity in trying to serve them well, and whose representatives, even down to the smallest station, are courteous, obliging and frank. Good will is so spread along the line that its employees seem to be solicitors of business for the road. Its directing head seems to be the direct opposite of that other railroad executive who, though his merits and abilities were many, nevertheless is most frequently recalled by quotation registering his emphatic unconcern of public attitude. The reason for the different attitude of people in this commissioner's state toward this carrier as com-

pared with the attitude toward other carriers may be attributed to its broad, consistent, long-established and maintained public relations policy.

No matter whether it be commissions, public service corporations, or the public—or our own association—to them and to it your committee expresses the thought that fair and adequate service and treatment is the road to good public relations. We believe that policies which increase understanding between men are worth while provided there is a sincerity and honesty of purpose that inspires and preserves respect and confidence. We believe that voluntary acts that are the result of mutual understanding and consideration are superior in quality to imposed requirements because the imposed regulation is generally the result of hearings which have been conducted in the spirit of antagonism. Voluntary action is not only within the law, but it conforms to the concepts of democracy.

Campaign of Education Proposed

Commissioner Lewis also presented a supplementary report of the Committee on Public Relations, after a meeting of the committee, regarding the resolution adopted at last year's convention declaring in favor of a well-directed program of education to the end that our citizens may obtain a more thorough knowledge and appreciation of regulatory problems and of the duties and responsibilities of regulatory bodies. The members expressed the belief that the time has been reached when more of this important phase of modern governmental activity should be taught in the schools. It was suggested that the association direct a careful survey of what is being taught along this line in each state at present so that it may be in a position to ask the state commissions to impress upon school authorities the importance of including this subject in the prescribed courses of study beginning perhaps with the seventh and eight grades. This was followed by a general discussion of the report indicating approval of its expressions.

Charles H. Markham, president of the Illinois Central and chairman of the Western Railways' Committee on Public Relations, who was invited to participate in the discussion, congratulated the association on having given the study of public relations a place on its program and said that much good ought to come from the study of the subject at its annual meetings. "That section of the report which encourages, to an even greater extent than at present, the solution of regulatory problems by voluntary action without recourse to formal procedure is particularly commendable," he said. "There must be more voluntary action and less formal procedure in the smaller details of regulation in order that you may be enabled to devote yourselves to the larger and more important aspects of your work. Voluntary action is the infinitely better and more lasting way to settle any controversy or solve any problem." Regarding the suggestion in the report for reforms in the operation of the standing rate committees Mr. Markham said: "I appreciate the conditions which inspire these suggestions. The suggestion that authority to make rates be delegated to these standing rate committees is a far-reaching one. I question whether such a course would be practical. Would it not deprive the railroads of the duty which they now have individually to initiate rates? Moreover, it is extremely doubtful whether even such far-reaching action as this would materially expedite the handling of rate matters. The ability of any group of men representing the railroads to settle rate adjustments out of hand is limited by the same considerations which must limit the Interstate Commerce Commission, for example, in settling rate adjustments out of hand. Meanwhile your commissions can do much to inform the public concerning the complexity which necessarily exists in a rate structure covering the widely ramified commercial activities of our busy country."

Geographical Representation on I. C. C. Urged

The Committee on Railroad Rates, Frank P. Morgan, of Alabama, chairman, presented a report reviewing recent rate developments, particularly in the rate investigations made by the Interstate Commerce Commission. The committee also recommended an amendment of section 13 of the Interstate Commerce act to give the state commissions greater authority over rates affecting the states, and urged upon the convention the adoption of a resolution calling upon Congress to "remedy the unbalanced representation now in effect on the Interstate Commerce Commission by the passage of an act dividing the country into four or perhaps five major rate-making groups and requiring representation of each group upon the Interstate Commerce Commission. Mr. Morgan offered a resolution to this effect which was referred to the executive committee.

The Committee on Co-operation With Interstate Commerce Commission, Paul A. Walker, Oklahoma, chairman, outlined the recent development of procedure under the agreement reached with the Interstate Commerce Commission and submitted a tentative report of a joint meeting with the co-operative committee representing the federal commission held on October 12, at which a revision of the previous agreed statement of principles was drafted. This was the subject of considerable discussion on the article expressing "the judgment that state commissions would not expect or desire to participate in a judicial capacity in joint hearings with the members of the Interstate Commerce Commission or its examiners in any case in which they appear as advocates," and the report was referred back to the committee.

The Committee on Consolidation of Railroads submitted no report, but its chairman, Harry G. Taylor of Nebraska, said that the committee had decided that it would not be proper, in view of the formal proceedings before the commission, to attempt to discuss the basic principles of consolidation and that it would accept President Ainey's statement in his address as fairly representing the views of the committee and probably of the association. The special committee was continued with direction to co-operate with the legislative committee if legislation to amend the present law is proposed.

Progress in Federal Valuation

The Committee on Valuation, Dwight Lewis, of Iowa, chairman, submitted a report reviewing the progress of the federal valuation work in part as follows:

While the completion of railroad valuation has not advanced as rapidly during the past year as those connected with the work had hoped, many important questions have been settled and the deck cleared for more rapid and satisfactory advancement during the common year. Increased appropriation by Congress has enabled the commission to recruit its valuation forces and overcome many of the handicaps which have heretofore impeded progress. Additions to the valuation forces on September 1, were as follows:

Additional examiners	23
Additional attorneys	18
Additional accountants	13
Additional engineers	21
Additional land appraisers and computers	55
Additional clerks and stenographers	30

Among the new appointments are a number of state commission men. These include former Chairman E. D. Lewis of West Virginia as senior attorney; former Chairman Halderman of the Colorado commission, senior examiner; Leonard Way, former secretary of the Idaho commission, and J. H. Corbitt, former

secretary of the Tennessee commission, examiners. As a result of increasing the personnel of the valuation forces and in preparation for increased effort, there has been a general reorganization of the various sections. Oliver E. Sweet, formerly attorney for the South Dakota Commission, has been made assistant solicitor, and M. A. Pattison has been appointed chief examiner of the valuation section.

449 Tentative Valuations to Be Made

The last annual report of the chairman of the Valuation Committee stated that up to August 31, 1924, there had been 378 tentative valuations completed and served upon the carriers. From September 1, 1924, to August 31, 1925, 227 additional reports have been completed and served upon the carriers, making in all 605 tentative valuations which have been served. This leaves 449 tentative valuations to be completed and served upon the carriers. When it is considered that a large portion of the commission's valuation forces have been engaged during the past year in preparing evidence for use in hearings which have been in progress, and also engaged in conferences with the carriers in an effort to settle controverted points, the record of tentative valuations completed and served during the past year must be considered a very creditable performance.

Railroad Protests

Responsibility for delay in completing the valuations does not rest upon the Bureau of Valuation. Had the carriers been contented with a fair appraisal, no doubt the work would have been completed well before this time. Every railroad of importance has protested against its valuation. All the delays of litigation with continuances, conferences, hearings, briefs, arguments and the like ensued. A large part of the time of employees of the bureau has thus been consumed in defending its work. The work has been delayed, and the only result thus far has been a striking confirmation of the bureau's valuations. Up to August 31, there had been approximately 241 final valuations announced by the commission. Approximately 175 of these were tentative valuations not protested, which automatically became final. Taking the remaining 66 cases, which includes all those cases which were subject to hearing, the tentative valuations of these carriers' properties amounted to $358,676,455. After the hearings were concluded and all the evidence which the carriers submitted had been considered by the commission, the final single-sum value of these carriers' properties for rate-making purposes was reduced to $348,713,717, or a reduction of $9,962,738; $8,529,951 of this amount was the result of applying the commission's present formula for estimating the amount of working capital, including material and supplies.

Decisions Affecting Final Value

Since the last convention the commission has definitely ruled upon a number of important claims made by the railroads in connection with the valuation of their properties. Among these are (1) a claim for development cost, which includes alleged cost of perfecting the carriers' operating organization, traffic arrangement, and the development of its business generally; (2) a claim for excess cost of maintaining its tracks when new over what it ordinarily costs to maintain the same tracks after they become thoroughly seasoned. The commission has rejected both of these claims. Whatever costs of this character have been incurred have been charged to operating expenses, and paid from operating income. The commission has decided there is no difference between these claims and the claim for unrecouped losses during early operations of a plant, and in making its finding has followed the decision of the United States Supreme Court in the Galveston Electric case. The commission has also refused to recognize franchise rights as an element of value upon which the carriers are entitled to a return. It said in 97 I.C.C. 165: "When the public grants to the carrier a franchise right it in essence assists the carrier to that extent in the discharge of its public duty. Certainly the public ought not to be taxed by reason of and in proportion to the assistance extended."

Officers Elected

Officers were elected at the session on October 14 as follows: President, A. G. Patterson, of Alabama; first vice-president, J. F. Shaughnessy, of Nevada; second vice-president, Henry G. Wells, of Massachusetts; secretary, James B. Walker, of New York, re-elected; general solicitor, John E. Benton, and assistant secretary, Clyde S. Bailey, who has been assistant to Mr. Benton for several years.

The later proceedings of the convention will be reported in next week's issue.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended October 3 amounted to 1,112,463 cars, a decrease of 8,182 cars as compared with the preceding week but an increase of 34,718 cars as compared with last year and of 32,687 cars as compared with 1923. Loading of grain and grain products showed a decrease of 24,433 cars as compared with the loading in the corresponding week of last year and coal loading a decrease of 12,997 cars, but all other classes of commodities showed an increase. Miscellaneous loading was especially heavy amounting to 442,431 cars, an increase of 46,560 cars. All three of the western districts, however, showed decreases as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED OCTOBER 3, 1925

Districts	1925	1924	1923
Eastern	249,135	243,181	253,699
Allegheny	215,834	202,223	218,350
Pocahontas	57,537	49,315	44,920
Southern	166,365	147,214	143,758
Northwestern	167,304	171,145	179,977
Central Western	179,064	185,177	166,789
Southwestern	77,224	79,488	72,283
Total Western	423,592	435,810	419,049
Commodities			
Grain and grain products	47,719	71,152	50,032
Livestock	41,305	39,158	40,926
Coal	174,317	187,314	191,718
Coke	12,327	9,798	12,497
Forest products	70,700	66,889	73,187
Ore	52,159	48,457	67,425
Mdse., l.c.l.	271,505	259,109	254,362
Miscellaneous	442,431	395,871	389,630
Total	1,112,463	1,077,748	1,079,776
September 26	1,120,645	1,087,954	1,097,493
September 19	1,098,428	1,076,847	1,060,811
September 12	975,434	1,061,781	1,060,563
September 5	1,102,946	921,303	928,916
Cumulative total 40 weeks	38,959,388	36,779,691	38,383,015

The freight car surplus in the week ended September 30 averaged 140,842 cars, a decrease of 9,611 cars as compared with the week ended September 22. This included 61,370 coal cars and 58,203 box cars. The Canadian roads for the same week had a surplus of 8,260 cars, including 5,425 box cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended October 3 failed to equal the record of the previous week by 1,542 cars, grain loading being lighter by 2,038 cars and merchandise being lighter by 554 cars. Coal loading was heavier by 577 cars and miscellaneous freight showed a gain of 320 cars. Compared with the same week last year loadings were heavier by 3,402 cars, coal loading by 312 cars, pulp and paper by 402 cars, other forest products by 382 cars, ore by 750 cars, miscellaneous freight by 1,609 cars and total loadings by 7,805 cars.

	Total for Canada			Cumulative totals to date	
Commodities	Oct. 3, 1925	Sept. 26, 1925	Oct. 4, 1924	1925	1924
Grain and grain products	20,389	22,427	16,987	280,869	312,280
Live stock	2,903	2,817	2,561	91,184	88,622
Coal	7,217	6,640	6,905	149,189	201,672
Coke	350	372	248	11,159	9,026
Lumber	3,878	3,876	3,650	142,140	143,796
Pulpwood	1,733	1,813	1,371	108,587	107,437
Pulp and paper	2,130	2,121	1,728	80,781	78,509
Other forest products	2,546	2,348	2,164	111,934	103,187
Ore	1,748	1,793	998	55,364	50,104
Merchandise, L.C.L.	16,003	16,557	16,094	605,643	573,089
Miscellaneous	15,995	15,675	14,386	496,330	474,860
Total cars loaded	74,897	76,439	67,092	2,133,120	2,147,584
Total cars received from connections	36,035	34,375	32,692	1,317,522	1,258,571

Our Transportation Problems*

New transportation agencies — Consolidation legislation needed—Hoch-Smith resolution

By Alfred P. Thom,
Vice-Chairman and General Counsel, Association of Ra ilway Executives

TRANSPORTATION is at the beginning of a new era. New transportation agencies are being rapidly developed and may profoundly affect the transportation problem. The motor vehicle has come to stay. It has been followed by a great expansion of the residential areas of persons doing business in cities and to revolutionize the business, social, and domestic habits of the people. It has radically altered the customs and the methods of passenger travel, and has grown into a competitor of substantial proportions to the steam railroads. It is important enough to have stimulated the public to accept an immense burden of taxation in order to revolutionize the highway system of the United States for its accommodation. At the end of 1924 there had been constructed, at an immense public cost, between 450,000 and 475,000 miles of hard surfaced roads, and this mileage is being added to yearly by approximately 40,000 miles, this at a cost of some $36,000 per mile or more. At the same date there were registered in the United States about 15½ million private passenger cars and over two million trucks.

It is a matter of common knowledge that, in certain important localities, the motor vehicle has absorbed so much of the traffic that there have been abandonments of rail lines. Transportation by airplane is also rapidly developing. The public will, of course, select and patronize the means of transportation which in the circumstances serves it best.

The railroad is the only means of transportation fixed to a given locality and permanently attached to a given route; the only one which continues to be the permanent and perpetual servant of localities which it has once begun to serve. A community which loses its railroads has no other permanent and dependable means of transportation which it may adopt in their place.

Moreover, what may be termed wholesale transportation, the movement of heavy articles, and other traffic in bulk, can be furnished by the railroads alone. They must continue in existence, their adequacy and competency to do the essential work of the public must, in the public interest, be preserved. A way must be found to make these several transportation agencies complementary to, instead of destructive of one another; to co-ordinate agencies all of which are useful, by a system of constructive and helpful co-operation. * * * Many of us can remember the welcoming acclaim with which the coming of the railroad to new communities was habitually greeted during the era of construction. All of us have seen the change, in many places, from this condition of universal popularity to a sentiment of marked hostility and antagonism. * * * Perhaps the fact that the new competition of motor vehicles and the lack of adequate revenues to support the railroad service, are even now necessitating the abandonment of rail lines both convenient and important to the communities they serve, may have a wholesome effect on public sentiment and will enable persons whose point of view has become distorted through the efforts of interested agitators, to study again the subject from a fair, business standpoint. Perhaps the loss of rail facilities may cause communities, heretofore thoughtless, to realize that the transportation problem is in reality their own problem, and bring about something of the old spirit of welcome and popularity, or at least a spirit of fairness and friendliness.

May we not, therefore, indulge the hope that the past struggles, misunderstandings, and conflicts have taught us all a useful lesson, and that, under the influence of adequate, faithful and perfected service, a constructive purpose to preserve the railroads and make them strong will be developed, so that no longer unreasonable and unreasoning hostility toward them will be permitted as a means of promoting political ambitions? * * * It is gratifying, in this connection, to be able to point to a very substantial and conspicuous movement which is exerting a marked influence in bringing the shippers and the railroads to a better understanding—the Shippers' Regional Advisory Boards, twelve of which are now functioning in districts which cover practically the entire country. It seems to me that these boards constitute machinery for a co-operative effort of large importance in securing information which is indispensable to business men and to the railroads as to what the immediate future of business is to be. * * * The carriers greatly appreciate the co-operation the shippers and members of this Association of Traffic Clubs have given them in this co-operative effort. I believe that this movement will continue to develop a clearer understanding between the parties as to their mutual interests and as to the value and necessity of intelligent co-operation.

Section 15a

Section 15a of the Transportation Act has, from the date of its adoption, been a "stormy petrel" of political agitation and discussion. Irrespective of differences of opinion all of us should appreciate the importance of preserving and increasing transportation facilities so as to make and keep them adequate to the public needs and must, it seems to me, agree that it would be most unwise to seek to change section 15a as it now stands unless we have reasonable assurance that what will take its place will not impair the capacity of the railroads to perform the public service. The public interest in adequate transportation will not justify or permit such a risk.

It is my personal opinion (and in this I express my own view and have no direction or authority to speak for the railroads) that substantial progress may be made towards a more scientific system of regulation, if Congress will adopt a well-considered plan of carrier consolidation. Congress has already committed itself in favor of the policy of consolidation. When the railroads of the country are consolidated into a number of competent systems, approximating as near as may be equality of earning power and capacity for service, it will be possible to make rates on sound economic principles and without need for

* Abstract of address at the dinner given by the Transportation Club of Louisville, Ky., to the Associated Traffic Clubs of America, on Oct. 8, 1925.

resort to an artificial system of rate making in order to provide for the preservation of "weak lines." The "weak line" problem will disappear when these "weak lines" are absorbed into and become parts of strong and competent systems. With the disappearance of the "weak line" problem, and the consolidation of the railroads into new and competent systems, the subject matter of regulation will become different and the problems of regulation greatly simplified. In making a scientific adjustment of the system of regulation to the changed conditions, it will easily be possible to establish railroad credit on the basis required by the public interest, thus providing the means necessary to an adequate and dependable transportation service and to such extensions by such systems of railway facilities into new territory as may be desirable for proper development of our people's resources.

My study of the question has not led me to the conclusion, reached, it is said, by some, that no additional legislation is necessary to bring consolidations about.

Legislation Necessary to Bring Consolidation About

Efforts to make progress are now being made under paragraph 2 of section 5 of the Interstate Commerce Act, where Congress, as a means of providing a temporary and *ad interim* method of securing the control by one carrier of another or others as steps towards ultimate consolidation, made provision for a method under which one carrier might, with the approval of the commission, obtain "control of any other such carrier or carriers either under a lease or by the purchase of stock or in any other manner *not involving the consolidation of such carriers into a single system for ownership and operation.*" This provision was doubtless intended to prevent stagnation in the matter of the orderly growth of systems pending the approval by the commission of a complete plan of consolidation.

The *ad interim* provision referred to has been found very useful in making progress towards the ultimate goal of Congress in respect to consolidations; but it appears from the face of the act that it was never intended, nor is it adequate, to solve the entire problem of consolidation. The act contains no machinery for carrying consolidations into effect. If any attempt were made to use it to bring about a status practically equivalent to consolidation, while the result would be a cumbersome and complicated corporate structure, the effort might measurably succeed in some parts of the country in which there is state machinery reasonably adequate for the purpose. It would, however, fail in others where the state machinery is manifestly inadequate. Moreover, there are so many problems and uncertainties to be dealt with that there is prospect of much litigation and prolonged delay and, in the end, the resulting status would not be a true or complete consolidation.

Under the present law, no consolidation in a complete sense is possible until after the commission has made and promulgated a complete plan of consolidation covering the entire country; and even then the present federal law provides no machinery for carrying into effect consolidations permitted under the plan. The only reliance, under existing conditions, would be on legal machinery provided by state laws; and, for reasons just suggested, this is not an adequate reliance in all cases.

Bills to Promote Voluntary Consolidation

As indicating an appreciation of the difficulties just suggested and in order to promote consolidations, bills have been introduced in both Houses of Congress, some hearings have been held, and substantial progress is being made towards a system which may be briefly summarized as follows:

1. A voluntary system under which, for a given period of years, two or more carriers shall have power to agree on, and jointly petition the commission for the approval of, a plan of consolidation to be carried out under any state laws conferring the requisite powers or under proposed provisions of the consolidation act of Congress itself, the commission to have power, after due notice of the hearing, to approve or to disapprove or to approve with modifications or with conditions attached, thus enabling the commission to require the inclusion of omitted lines deemed by it essential to adequate public service. Doubtless it would be wise to include a provision that, if "an omitted line" avails itself of the action of the commission to exact unreasonable terms, the commission shall have power, upon report to it of the facts, to annul the condition, to modify it, or to specify the terms on which the omitted line may avail itself of the condition.

The work so far done by the commission in studying the question of a general system of consolidation would be by no means wasted, as the legislation permitting and encouraging voluntary consolidations should, no doubt, provide for the use, under proper safeguards, in the proprovide for the use, under proper safeguards, in the proceeding to obtain its approval of any proposed consolidation, of the information so far obtained by the commission in its general study.

2. The act of Congress to confer the necessary powers and to provide the legal machinery to carry through any consolidation approved by the commission.

3. If at the end of the prescribed number of years, consolidation of all the carriers has not been effected, the commission to be required, in the light of conditions then existing, to report to Congress its suggestion of a method whereby the authority of the government may, if desired, be directly invoked to complete the system of consolidations.

In my opinion, if adequate legislation of the character indicated were adopted at the coming session of Congress, the enactment would be promptly followed by so many proposals to the commission for consolidation that complete consolidation, to the extent approved or found desirable by the commission, would be practically assured under the permissive features of the legislation without the necessity to resort to any measure of legal compulsion.

Measured by the test of the public interest to which I have referred, the policy of permitting proper consolidations and providing ways to carry them into effect is, in my judgment, a wise policy and should, in the public interest, be adopted. In no other way that has been suggested, could the public, under a system of private ownership and operation, be so well assured of strong and competent carriers and adequate service; for, in no other way, is it as easily practicable to establish and apply a scientific system of regulation or to create and stabilize the credit which, in the public interest, the carriers must have if they are to do the public service.

When consolidations into new systems, in accordance with the declared policy of Congress, shall have been accomplished, a more satisfactory basis than at present will exist for a scientific readjustment of the system of regulation. Meanwhile let us have peace!

It would seem manifestly unwise, under existing conditions, to seek to disturb a situation in which the railroads are performing a perfect and completely adequate service.

Reasonable stability of policy in the regulation of the transportation business is essential to its welfare and success, just as it is in regard to any other business, for no business can succeed or prosper when it is con-

stantly buffeted by the storms of political controversy over the financial principles to which it must be adjusted.

The Danger of Political Rate-Making

The second and the only remaining transportation problem to which I shall invite your attention this evening is the problem which arises out of a tendency, quite recently developed, to exercise the power of regulation by direct action of Congress instead of, as heretofore, through the administrative processes of a permanent and informed regulating authority. Nothing, in my opinion, could be more unfortunate or destructive of the public interest than regulation by direct act of Congress. Transportation is a business, subject to the same influences which make or mar other business enterprises, differing, however, from most other business enterprises in that it performs an essential public service, and, in the public interest, must be kept adequate to do its work. It cannot be subjected to hurtful policies, without reflecting the consequences in impaired capacity. The wise regulation of it involves a thorough knowledge of traffic and transportation conditions of continent and even world-wide extent, and of the traffic and transportation conditions affecting each particular carrier. To substitute regulation by political action, based on political exigencies and considerations, for a careful, expert, business-like administration, would be a quick method of destroying the privately owned carriers and of making government ownership and operation inevitable.

Congress, until recently, contented itself with laying down broad and equitable principles of regulation but the distress and discontent in certain communities and depression in a great industry have confronted members of Congress with the political temptation to pacify conditions at home by direct and hasty action on the floor of Congress regarding matters within the jurisdiction of the commission which it had created. It is to be hoped that the unwisdom and perilous consequences to the public welfare of this course will be quickly recognized. The members of the Transportation Club of Louisville, our generous host tonight, and of these Associated Traffic Clubs can render no more useful or patriotic service than to use their large influence to check and destroy a tendency so fraught with peril to the public welfare.

The Hoch-Smith Resolution

An illustration of the unfortunate tendency referred to is to be found in the Hoch-Smith resolution in the form in which it finally passed. There were no hearings on it in its final form, nor any opportunity to oppose it before committees. It is now being interpreted in some quarters, I believe, as an effort on the part of Congress to bring direct pressure upon the commission to reduce rates on agricultural products. There is no escape from the conclusion that the resolution, as finally passed, is calculated to exert pressure on the commission, which is a creature of Congress, in the orderly and unbiased performance of its duties. The wisest course for Congress now to pursue will be promptly to repeal it. Whether or not such action may reasonably be expected, it is impossible to say; but the uncertainly and confusion with which it threatens the general business of the country in all lines of useful industry, should, and I earnestly hope will, prevent further effort at regulation by direct action of Congress.

SAFETY TALKS by officers of the Missouri-Kansas-Texas are being broadcast from station WDAP at Ft. Worth, Tex. The first address, delivered by C. F. Colby, assistant superintendent of safety, included safety suggestions for passengers and automobile drivers.

Traffic Clubs Meet at Louisville

THE semi-annual meeting of the Associated Traffic Clubs of America, which was held at Louisville, Ky., on October 7 and 8, gave special consideration to the regulation of motor trucks and the United States Railroad Labor Board. It was reported that 36 of the 52 member clubs to date had ratified the resolutions adopted at the Kansas City convention last spring, asking for the repeal of the Hoch-Smith Resolution, while two had voted not to ratify, two had adopted the resolution with amendments, one had disagreed so that no vote had been taken, and nine had taken no action. The subject of co-operation between the association and the shippers' regional advisory boards was discussed at the meeting and it was voted that the president appoint a special committee to consider the subject and report at the next meeting.

Following a meeting of the directors on October 7 the slogan, "Railroad Prosperity is National Prosperity" was submitted to the meeting as a substitute for the slogan, "Give Our Railroads a Chance," which it was felt had served its purpose. Objection was raised to the slogan as suggesting railroad propaganda. A special committee was appointed to consider the matter and on October 8 proposed the slogan, "Traffic Clubs for Transportation Purposes." No decision was reached at the meeting and the matter was left in the hands of the committee to report at the next meeting. Dallas, Tex., was chosen as the place for the annual meeting to be held next April, on a date to be set by the president.

A special committee presented a resolution on the regulation of motor buses, which was adopted at the meeting and will be sent to member clubs for ratification. The resolution asks that Congress pass a law charging the Interstate Commerce Commission with the regulation of motor vehicles when engaged in interstate commerce. It asks that such regulation be in harmony with the regulations now applying to rail carriers and that the association send copies of the resolution to the President of the United States, all members of the Senate and House of Representatives, the Interstate Commerce Commission, and to other public bodies interested in highway transportation.

The special committee on the United States Railroad Labor Board, of which F. L. Speiden is chairman, suggested several provisions, but deemed it unwise to take final action at this meeting. It was recommended that the report be sent to member traffic clubs with the request that their delegates come to the annual meeting in the spring prepared to deal definitely with the subject. The chairman recommended that (1) provision should be made for direct negotiations between the carriers and their employees or organizations thereof; (2) for mandatory establishment of adjustment boards composed of representatives of rail employees and managements; (3) for the continuance of the Railroad Labor Board, strengthened by legislative enactment making it illegal for the employers to declare a lock-out, or the employees to declare a strike until 30 days shall have elapsed after the decision of the Labor Board; (4) for the board to be entirely free from politics; and (5) for the board to be empowered by law to compel the attendance of witnesses to try any case before it for the sole purpose of determining facts.

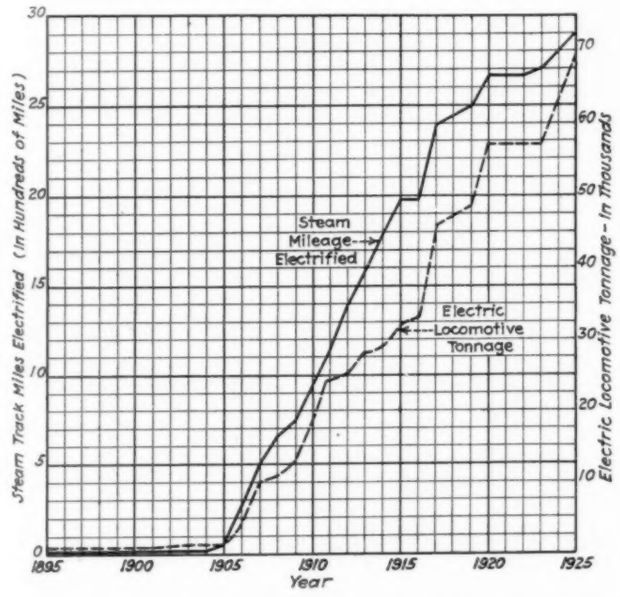
Alfred P. Thom, general counsel of the Association of Railway Executives, spoke upon "Our Transportation Problems" at the annual dinner of the Transportation Club of Louisville on October 8. An abstract of his address appears on page 716 of this issue of the *Railway Age*.

A. E. R. A. Report on Heavy Electric Traction

Special attention given to locomotive data and study of self-propelled cars

THE heavy electric traction committee of the American Electric Railway Association has included this year with its report, three large charts. One of these lists the principle characteristics of alternating current locomotives of the world. Small diagrams included in the chart show cab and wheel arrangements. The second chart includes the same information for direct current locomotives and the third covers similar data concerning multiple-unit trains used in North America.

The bibliography of heavy electric traction which was taken over by this association several years ago from the Association of Railway Electrical Engineers has been completed to January 1, 1924, and is available for consultation in typewritten form at the A. E. R. A. offices at 292 Madison Avenue, New York. In view of the fact that publication of this bibliography would entail considerable expense, the committee recommends that nothing further be done unless the co-operation of other interested bodies can be obtained. The committee has recommended, however, that the bibliography be brought up to date as of January 1, 1925, at an estimated cost of $60.00.



Growth of Steam Railroad Mileage Electrified and Electric Locomotive Tonnage in Heavy Traction Service in United States, Canada and Mexico

Tabulations of electric locomotive tonnage and electrified track mileage were revised, brought up to date and shown on a curve sheet.

Branch Line Electrification and Self-Propelled Cars

The committee was instructed to tabulate facts pertinent to other available types of power which might improve the economic and operating conditions apparently inherent to steam engine operation of branch lines, terminals and yards. The substance of this part of the report is as follows:

It is common knowledge that the operation of many branch lines as now conducted with steam equipment, is unprofitable, that the inroads made by automobiles, motor trucks and buses are material, and that a radical departure from the present methods of operation may be necessary to lessen the economic burden of such losses on our railway systems. There are several candidates for recognition in the field of motors for both freight and passenger traffic which may be grouped according to the class of service in which they are used.

PASSENGER

(1) Gasoline motor cars utilizing some form of mechanical drive.
(2) Gas-electric motor cars equipped with gasoline motor, electric generator and driving motors.
(3) Electric storage battery cars.
(4) Electric motor cars, trolley or third rail.

FREIGHT

(1) Gas-electric locomotives comprising gasoline motor, electric generator and driving motor.
(2) Oil electric locomotives comprising Diesel or semi-Diesel oil engine, electric generator and driving motors.
(3) Electric storage battery locomotives.
(4) Electric locomotives, trolley or third rail.

In addition to the above list the committee is aware of experiments with steam engine motor cars and several forms of mechanical drive for gas and oil engine locomotives, but no data is available for this report.

Some of the types of motor cars mentioned have been in regular service operation for a sufficient time to offer records of construction and operation of great value in a study of this problem.

From the information gained from table No. 1, it is apparent that a wide latitude in the choice of substitutes for the steam engine passenger train is available for branch lines. All of the above motor cars have sufficient capacity to haul at least one trailer and the introduction of electro-pneumatic control of gas motors mounted upon several trucks puts cars so equipped in multiple unit train competition with gas electric, storage battery and straight electric motor car trains. It is probable that a motor car operating alone or with one trailer will provide for traffic requirements on the large majority of branch lines, but trains of a greater number of cars are now made available with the four types of equipment listed.

In general, the cost of operation of motor cars is below that of steam engine trains in branch line service, and both the character of service and the running time may be improved. The cost of repairs of gas motor cars may be open to some question owing to the small mileage made thus far with such equipment. In this connection, it is instructive to note the record of nine gas-electric cars making a total of 566,508 miles in 24 months operation (July 1, 1922, to June 30, 1924) on the St. Louis-San

Francisco, prior to which time the cars had been in regular service for several years.

In addition to the detailed operating data on the St. Louis-San Francisco gas-electric cars manned by a crew of two men, table No. 2 includes similar data upon a typical branch line operated by steam engines, hauling trains of two and three passenger cars and manned by the usual complement of engineer, fireman, conductor, baggageman and brakeman. This gives a general perspective of the field of usefulness of the gas-electric car in this class of service.

The gas-electric cars operating upon the St. Louis-San Francisco have a weight of 104,000 lb., 70-ft. body, 11-ft. baggage space, 8-cylinder gas engine, 8 in. x 10 in. running at 550 r.p.m. and two 110 h.p. motrrs. Approximately 100 of these cars have been built and put into operation on various lines, but manufacture was discontinued during the war due to expediency and also the high weight and price of the equipped car. While the lighter and less expensive cars now sold are expected to supersede the heavier gas-electric cars previously built, it is instructive, nevertheless, to note the reasonable cost of operating the older equipment after it had been in operation a sufficient term of years to reach what might be accepted as stable maintenance expense.

Motor cars which will be equipped with semi-Diesel oil engines are now in construction but the committee finds no adequate operating data available for the report and recommends that this subject be continued in next year's committee work.

The electric storage battery motor car has a field of usefulness under certain conditions which must include the acceptance of excess car weight, an electric power supply, and a high maintenance and depreciation expense due to the limitations of the storage battery.

The electric motor car operated from either trolley or third rail is so well known that no comment is needed as to its suitability to provide any service desired on branch line or terminal line electrification, either with single cars or with multiple unit trains of any desired length. To the cost of the electric motor car it is necessary to add the first cost and operating expense of substations and contact line. Such additional expense is small per motor car unit on congested tracks, but may become an economic burden on lines providing very infrequent train service.

Locomotives available for branch line and yard switching may be grouped as follows:

(1) Gas-electric.
(2) Oil-electric.
(3) Storage battery.
(4) Electric with trolley or third-rail.

Owing to the limitations of the mechanical clutch and transmission system commonly used with gas and oil motors, the application of such motors of the larger sizes to locomotive drive is apparently best accomplished through electric transmission comprising electric generators and motors.

The gas-electric locomotive enjoys the advantage of a light inexpensive high speed engine construction but utilizes high priced fuel. Apparently the gasoline engine application to locomotives is best adapted to the smaller capacities.

During the past year the first application in this country of the Diesel-oil engine to locomotive drive has been put into demonstration service on several railroads. This engine is of the semi-Diesel type, runs at 600 revolutions and drives through electric generators and motors geared to the axles in the usual way. Owing to the low price of fuel available for engines of the Diesel type, its application to locomotive drive offers an attraction in fuel economy when compared with steam engine operation. Both gas engine and oil engine drives, thus far operated, in-

TABLE NO. 1. REPRESENTATIVE TYPES OF MOTOR CARS

Railway operating	Mack model ACP LV	New Haven hydraulic N. Y., N. H. & H.	Brill 75	Electro-motive Company C. Great Western	Storage battery Canadian National	Electric
Date	1925	1923	1925	1924		1923
Length	54 ft.	58 ft.	55 ft.	57 ft.	53 ft.	58 ft.
Weight (empty)	48,000 lb.	53,000 lb.	53,000 lb.	70,000 lb.	74,000 lb.	50,000 lb.
Seating (cap.)	44	60	56	59	50	60
Baggage space	150 sq. ft.		125 sq. ft.	72 sq. ft.	110 sq. ft.	73 sq. ft.
Type motor	Gas	Gas	Gas	Gas	135 Kwh battery	Electric
Bore and stroke	5 in. x 6 in.	5⅝ in. x 7½ in.	6 in. x 7 in.	7 in. x 8 in.		
Cylinders	8	6	6	6		
Trans. and control	Elec. pneu.	Hydraulic	Clutch and gear	Electric	Electric	Electric
Rated speed	55	54	60	50	30	50
Approximate price	$31,000	$35,000	$26,000	$34,000	$40,000	$20,000

TABLE NO. 2—ST. LOUIS-SAN FRANCISCO RAILWAY OPERATING EXPENSES, 9 GAS ELECTRIC CARS, JULY 1, 1922—JUNE 30, 1924

(Cars built in 1911)

		Gas, elec.	Typical steam train
Total motor car miles		566,508	....
Total trailer car miles		256,018	....
Total car miles		822,526	....
Wages per train mile	Cents	17.67	28.80
Fuel and lubricants	"	8.78	18.60
Running repairs	"	3.01	....
Classified repairs	"	4.68	31.40
Miscellaneous and supplies	"	.67	4.50
Total expense per train mile	"	34.81	83.30
Total expense per car mile	"	24.00	....

TABLE NO. 3

	Gas-electric	Storage Battery	Storage Trolley	Oil-electric	Storage Battery	Electric Trolley
Power	Gas	Storage Battery	Storage Trolley	Oil	Storage Battery	Trolley
Weight—total	80,000	80,000	80,000	120,000	120,000	120,000
Weight—drivers	80,000	80,000	80,000	120,000	120,000	120,000
Engine	Winton			Ingersoll-Rand		
Cylinders	6—7 in. x 8 in.			6—10 in. x 12 in.		
H.P. rating	200			300		
Battery—type		Exide (200 KwH)			Exide (340 KwH)	
Number cells		100—FL-13			100—FL-21	
Voltage		190			190	
Motors—Type	HM-830	HM-830	HM-830	HM-840	HM-840	HM-840
Number motors	4	4	4	4	4	4
H.P. rating	60 H.P. at 250 V.	60 H.P. at 250 V.	60 H.P. at 250 V.	95 H.P. at 250 V.	95 H.P. at 250 V.	95 H.P. at 250 V.
Gearing	71/14	71/14	71/14	82/14	82/14	82/14
Wheels—diameter	33 in.	33 in.	33 in.	36 in.	36 in.	36 in.
Max. trac. effort (25 per cent coeff. ad.)	20,000	20,000	20,000	30,000	30,000	30,000
Speed—MPH (max. T. E.) (25 per cent coeff. ad.)	1.8	4.8	6.6	1.4	4.2	6.0
Approximate price	$40,000	$37,000	$26,000	$61,000	$48,000	$33,000

troduce limitations in the horse power capacity of locomotives which generally restrict the availability of maximum tractive effort of such locomotives to very low speeds, thus making these types of locomotives best adapted to terminal switching service or operation on branch lines of low gradient. Larger oil engines are under construction which will broaden the field of application of this type of locomotive drive.

Storage battery locomotives have not been materially changed in construction during the past year, but more data are now available, especially on the larger capacities. This type of locomotive is apparently best adapted to terminal switching service under conditions calling for a low daily mileage and with an opportunity provided for keeping the battery charged. The maintenance and depreciation account of storage battery locomotives must include provision for periodic battery renewals in addition to the usual annual charges for the upkeep of battery, motor and mechanical parts of the locomotive.

Electric locomotives operating from trolley or third rail are well known and are available in any capacity, for branch line or terminal service. This type of motive power has demonstrated its reliability and effectiveness in replacing steam engines for any kind of service from the lightest to the heaviest duty performed.

Table No. 3 gives construction data of representative equipment of the several types noted.

In conclusion the committee states that branch line operation covers such a wide variety of service that each installation must be considered as a separate problem and the merits of steam, gas, oil, or electric driven motive power determined by the local conditions obtaining. This report presents some of the general characteristics of motive power other than steam, a field in which there is rapid development.

Articulated Trains

Information was obtained from two companies operating articulated train units. Certain operating characteristics and costs of these units were compiled and compared with data on other electric car units operated by the same companies.

Owing to the limited use to date of articulated train units, no detailed engineering study was made.

The report is signed by John C. Davidson, chairman; J. M. Bosenbury, vice chairman; H. F. Brown, secretary; Charles R. Harte, sponsor; R. B. White; L. S. Wells; John O. Madison; Norman Litchfield; E. C. Johnson; James T. Hamilton; J. V. B. Duer; J. H. Davis; A. H. Daus; H. W. Cope; Morris Buck; C. E. Brown; A. H. Armstrong.

Scrap Control on the Chicago Great Western

By J. L. Feemster

General Storekeeper, Chicago Great Western, Oelwein, Iowa.

SCRAP on the Chicago Great Western is considered of sufficient importance to warrant the preparation of a statement for the general manager every week. This statement shows the volume of scrap on hand according to the A.R.A. standard classification, together with other information calculated to keep the management entirely familiar with the scrap situation. For purposes of sale, a monthly scrap statement is also prepared upon which the purchasing agent receives bids, whereupon the scrap is disposed of through the medium of sale orders. This monthly statement, however, does not delay the disposition of additional quantities which may accumulate unexpectedly. When such instances arise, it is comparatively simple for the general storekeeper to communicate with the purchasing agent and arrange for its sale. The importance of this arrangement is indicated by the fact that sales of this character are made several times each week for the purpose of converting the scrap into money immediately.

The Chicago Great Western has one scrap dock for the system which is situated at Oelwein, Iowa, the site of the system shop and general store. All scrap included in the standard classification is handled at this dock, where it is unloaded, sorted and finally loaded out on the sale orders. Unloading is accomplished for the most part by a locomotive crane equipped with a magnet, after which the scrap is sorted by hand into the proper bins which are emptied by the crane again when scrap is being loaded on sale orders. The records for this plant indicate that for the period from January 1, 1925, to September 1, 1925, 20,883,641 lb., or 10,442 tons, of scrap were received at this plant, or at the rate of about 1,305 per month. Of this 18,345,641 lb. was sold on sale orders; 450,000 lb.

A Portion of the Scrap Dock at Oelwein, Iowa, Showing a Flat Car-Mounted Crane Handling Bolts

was used at the local foundry; 808,000 lb. was reclaimed and 1,280,000 lb. recovered. The reclamation work consisted of reworking otherwise unserviceable materials taken from the scrap after which they are returned to stock and issued at a reclaimed price, this price covering the scrap value of the material plus the cost of reclaiming. The recovered material comprises all the usable material which is picked out of the scrap received at the dock.

The cost of handling this volume of scrap, including not only the loading on sale orders but also the unloading and the proper sorting, amounted to $8,538.12 which is equivalent to a cost of 81.8 cents per ton, the organization consisting of a foreman, crane crew and 14 scrap sorters.

In addition to the scrap handled at the dock there were sold during this same period quantities of scrap which were handled at the storehouse owing to its close proximity to the shops. This scrap consisted of 667,680 lb. of turnings and drillings and 90,600 lb. of cast iron borings, as well as 159,107 lb. of scrap brass. The cost of handling the drillings and borings was approximately 60 cents per ton, the cost of loading being included in the cost of handling at the dock as this commodity is loaded by the same locomotive crane. It is not possible to de-

termine accurately the total cost of handling the scrap brass as the greater portion of this scrap is melted up at the company's foundry. However, it is estimated that this cost is in the neighborhood of $1.00 per ton. Considering the additional borings and drillings handled at the store and combining the several costs, it has been determined that the total cost of handling scrap at the Oelwein plant aggregates 78.9 cents per ton, excluding brass. Owing to the fact that scrap wheels are disposed of on an exchange basis no attention has been given these in the figures, the cost including only the scrap covered by sale orders and disposed of in this manner. If the wheels were included the cost would be lowered. The turnover of scrap slightly exceeds once a month. Indeed, there are times when the scrap bins are practically bare in view of the efforts being made to convert the scrap into cash promptly.

Advanced C. & N. W. Commutation Fares Approved

THE Interstate Commerce Commission in a case which has been before it since 1920, has authorized and directed an increase of 20 per cent in the intrastate commutation passenger fares of the Chicago & North Western on its lines in Illinois, above the rates in effect on August 25, 1920, immediately prior to the general advance in rates in Ex Parte 74, subject to a maximum of 2 cents a mile. In an earlier report the commission ordered increases in Illinois intrastate fares corresponding to the increases previously authorized in the eastern group, which includes the Illinois district, in order to remove prejudice to interstate passengers; but the commutation fares were excluded from that order and reserved for later consideration. Some testimony regarding the C. & N. W. fares was taken in 1920 but no action resulted and the road last May asked for a further hearing, which was held. The opinion, by Commissioner McChord, says in part:

Tickets to bearer good for 10 rides are today upon the level in effect in April, 1897, increased by only 10 per cent June 10, 1918. Bearer tickets for 25 rides have changed their level since 1894 only to this extent: April 10, 1912, approximately 10 cents per ticket, or four-tenths of a cent per ride, was added; and June 10, 1918, these rates were increased by 10 per cent. Monthly tickets, good for 60 rides by one individual during a calendar month, have had no general changes for 34 years other than an increase ranging from 30 cents to 40 cents a ticket, or from one-half cent to two-thirds of a cent a ride, effective April 10, 1912; and June 10, 1918, these rates were increased by 10 per cent. In view of the changes which have occurred since the year 1914, of the increased cost of labor and materials, and of the higher levels of other charges for transportation, the static condition of these commutation fares is noticeable. The 10 per cent increases were made pursuant to general order No. 28 of the Director General of Railroads.

Upon the showing made, petitioner has failed to earn 5.75 per cent upon the cost of its road and equipment, including materials and supplies, since 1920; and the shortage for the calendar year 1924 was more than $12,000,000. While the investment figure does not necessarily indicate the value of petitioner's property, we may use it in estimating the cost of the particular service. Using accounting methods approved by us, petitioner estimates that the expenses and taxes incurred in the performance of its suburban services, above described, exceed the revenues derived therefor by more than $1,297,900. A further estimate indicates that, even though commutation fares for intrastate transportation in Illinois be increased by 20 per cent, as here sought, there will still be a deficit in the revenues from this service in excess of $600,000. In other words, petitioner's suburban fares in the Chicago district, interstate and intrastate, do not pay and will not pay anything toward a return upon petitioner's investment; and the increases sought are expected merely to reduce the out-of-pocket loss.

As between the cost of and the returns from the service the showing leaves a wide margin adequate to cover possible error, and it may therefore be accepted, for present purposes, that the figures are approximately correct and illustrate an actual condition. The greater part of the deficit is chargeable to the intrastate service, aggravated by the lower bases of intrastate fares.

In this connection it should be said that the increased commutation fares here considered were filed by petitioner with the Illinois Commerce Commission, to become effective February 15, 1925, and have been suspended until December 15, 1925. The same schedules were at the same time filed here, and were suspended in respect of their interstate application. In that situation we sought the co-operation of that commission for the disposition, through a joint hearing and conference agreeably with the co-operative plan, of the issues thus presented, but failed in the effort.

We find that there are no conditions within Illinois justifying the maintenance by petitioner of intrastate commutation passenger fares and of charges for multiple-trip commutation tickets therein lower than the corresponding fares and charges applicable to the interstate transportation of passengers by petitioner to, from, or through the State; and that the maintenance of such intrastate fares and charges lower than the corresponding just and reasonable interstate fares and charges established and maintained by petitioner pursuant to the authority heretofore given by this commission in Ex Parte 74 gives an undue preference and advantage to persons traveling in intrastate commerce on petitioner's lines within said State and subjects persons traveling in interstate commerce on petitioner's lines to, from, or through the State to undue prejudice and disadvantage, and unjustly discriminates against interstate commerce; which undue preference and prejudice and unjust discrimination should be removed.

The Illinois Commerce Commission has this week refused to withdraw its ruling, made last spring, suspending increases of 20 per cent in suburban fares proposed by the Chicago & North Western in February, although the Interstate Commerce Commission has just authorized the increases. A plea that the new fares be allowed to go into effect, since they had been approved by the Interstate Commerce Commission, was disallowed. The Interstate Commerce Commission, in its decision, referred to the fact that it had asked the state commission to join in considering the application but that no representative of the state commission appeared.

Motion to Revise Tentative Valuation Denied

WASHINGTON, D. C.

THE Interstate Commerce Commission has denied motions filed by the Delaware & Hudson and affiliated companies asking the commission to revise its tentative valuation order of March 28, 1923, subject to the right of the carriers and others interested to present to the commission their views concerning pertinent questions of law after they have placed in the record at a hearing in evidence in support of such matters of fact as they may wish to have considered by the commission in connection with the protests against the tentative valuation, including the law questions. The hearing has been assigned for October 23. At the date formerly set for the hearing on the tentative valuation, counsel for the railroads filed the motions referred to, asking that the commission substitute for the tentative valuation a lawful tentative valuation fully conforming to the valuation law in the particulars specified and that it fix a date within which protestants might submit a brief and argument in support of the motions and subsequent dates on which they might be heard orally thereon by the full commission. Meanwhile they asked that the hearing be suspended pending a determination of the motion by the commission. Examiner Marchand said the motions would be referred to the commission but as the parties declined to submit evidence at the time he ordered the hearings closed. In its order denying the motion the commission said:

It appearing, That by said order of March 28 the Commission made, under and in accordance with the provisions of section 19a

of the Interstate Commerce Act, tentative valuations of the properties of the carriers; that thereafter protests against the tentative valuations were duly filed by the carriers in the office of the Commission; that thereafter the Commission assigned the protests for hearing before one of its examiners; that thereafter, and before the date of said hearing, the carriers instituted a suit in the District Court of the United States for the Southern District of New York, in which suit, among other things, they requested the court to annul and set aside said order of March 28; that thereafter, and as a result of proceedings in said court, the court, by decree duly entered, denied the request and dismissed the petition of the carriers in said suit (295 Fed. 558), and that in connection with such denial and dismissal the court, among other things, said:

Entertaining these views, we are of opinion (1) that the Commission has reasonably complied with the requirement of the statute in respect of "tentative valuation;" and (2) that the petitioners are not placed in any legally disadvantageous position by any act of the Commission. We therefore conclude that there is no equity in this application to suppress a merely preliminary step in a lawful valuation proceeding, and for that reason dismiss the petition, without costs. (Id. 561.)

It further appearing, That thereafter, upon appeal, said degree was affirmed by the Supreme Court of the United States (266 U. S. 438); that the reasons set forth in said petition in support of the aforesaid request of the carriers were the same in substance as the reasons now advanced by the carriers in support of the motions covered by this order, and that the Commission is not required by said Interstate Commerce Act to pass upon or determine questions of law separately from the facts to which the law is to be applied;

It is ordered, That said motion be, and it is hereby, denied, subject to the right of the carriers and others interested to present to the Commission their views concerning pertinent questions of law, after they have placed in the record in said Valuation Docket No. 328, at a hearing, the time and place of which will be fixed hereafter by the Commission, evidence in support of such matters of fact as they may wish to have considered by the Commission in connection with the aforesaid protests of the carriers, including said questions of law.

Handling Cantaloupes

TO handle this year's crop of 14,500 cars of cantaloupes from the Imperial Valley, required unusual care on the part of the Southern Pacific and its subsidiaries, the San Diego & Arizona, the Holton Inter-Urban and Inter-California and the Pacific Fruit Express. Prior to the beginning of this movement, officers from all branches of the service met with shippers to discuss the many phases of the problem. The first cantaloupes moved on May 7, the earliest on record, and continued until July 30. The heavy movement started on May 22 with shipments which increased within a few days to 100 cars a day and finally rose to 550 cars a day.

With the ordering of the first cars the trainmaster in charge of the district established his office at Brawley, Cal., where 40 per cent of the movement originated and where the Pacific Fruit Express maintains its central office and an icing deck of 56 cars capacity. An assistant trainmaster was stationed at El Centro, and another assistant trainmaster moved about where needed. Crews were established as the volume of business increased, starting with one crew each at Brawley and El Centro, and increasing to eight crews at Brawley, six at El Centro and one at Heber. Each of these crews was assigned certain duties. At Brawley two crews were assigned to spotting cars and pulling away loads, two to serve the Westmoreland branch, and two the Sandia branch, while one crew did tramp work and filling in where needed. A similar program was developed at El Centro, except that there were no branch lines to serve.

To handle the switchers up and down the main line and on the branches, a double phone line was used from Niland to Calexico and on both branches. Phones were established at Niland, Calipatria, Brawley, Imperial, El Centro, Heber and Calexico as well as at the ends of the Sandia and Westmoreland branches. As soon as the trainmasters were established an order was issued by the train dispatcher, requiring all except first-class trains moving from Niland to Calexico or on either branch, to call the trainmaster at Brawley from Calipatria before departure from that point and obtain a clearance card, giving them authority to move from Calipatria to Brawley, Sandia or Westmoreland. At Brawley they obtained a card to move to Imperial. At Imperial the conductor called back to Brawley, releasing the block to the trainmaster at that point, and obtained permission from the trainmaster at El Centro to move from Imperial to El Centro. At El Centro permission was given him to move to Heber and at Heber he released the block to the trainmaster at El Centro and obtained permission from the yardmaster at Calexico to move from Heber to Calexico. The same restrictions were placed on westbound trains from Calexico. This enabled the trainmaster or yardmaster to move the switchers to and from outside points without the necessity of obtaining orders.

Loading at the sheds began at noon and was completed at 3 a. m. From 5 p. m. to midnight loaded cars were pulled out and empties were re-spotted. Trains hauling the cantaloupes out of the valley to the main line at Yuma, Ariz., via Calexico started at 3 p.m. from Brawley and continued at two-hour intervals until the eastbound loads were moved. These trains started out of Brawley with 30 to 35 cars. At El Centro 20 to 25 cars were picked up and the trains were filled out to 68 cars at Calexico. The cars were sealed on route to Yuma by two clerks of the Inter-California Railroad at Calexico who were able to apply the seals on a train of 68 cars in 12 to 15 min.

To provide ample cars for moving the crop, 2,500 empty refrigerators were stored within 12 hours of the valley and 5,000 more between Yuma and Tucumcari, N. M. A reserve of 2,500 empties was always maintained against any interruption that might occur.

Some idea of the magnitude of the movement is gained from the following figures: Sixteen switch engines required a crew of 80 men. The 10 to 12 haulers required crews of 60 to 70 men, 6 car men, 30 to 35 additional clerks, and 15 to 20 mechanical employees. The Pacific Fruit Express employed 350 to 400 icemen and 30 to 35 clerks at Brawley, El Centro and Calexico. About 130,000 tons of ice was used during the season.

Some C. N. R. Veterans with the President

Top Row, Left to Right: G. T. Bell, Executive Assistant to Traffic Vice-President (47 years); W. D. Robb, Vice-President (54 years); Sir Henry Thornton; T. A. Dalrymple, Foreman (58 years).

Bottom Row: G. M. Stone, Dispatcher (51 years); J. S. Corner, Chief Operator (52 years); J. H. Moore, Superintendent of Express Equipment (52 years); Nap Foy, Conductor (42 years). W. H. Sargeant, Inspector (58 years).

General News Department

The Brotherhood of Railway and Steamship Clerks, Freight Handlers and Station Employees is threatened with expulsion from the American Federation of Labor because it admits teamsters, chauffeurs and stable employees to membership. These men, say the officers of the A. F. of L., should belong to another union, the International Brotherhood of Teamsters, Chauffeurs, Stablemen and Helpers of America.

An application of the Order of Railroad Telegraphers, representing employees on the Chicago Great Western, the Chicago, Burlington & Quincy and the Chesapeake & Ohio, for wage increases and changes in working rules, was heard by the Railroad Labor Board on September 24. The increases asked were five cents an hour on the Great Western and six cents an hour on the Burlington. The Chesapeake & Ohio was involved only in an application for changes in rules.

June Mechanical Convention

After a joint meeting of the General Committee of Division V—Mechanical, American Railway Association, and the executive committee of the Railway Supply Manufacturers' Association, held in Philadelphia, October 13, it was decided to hold the annual convention of Division V and the R. S. M. A. exhibit on Young's Million Dollar Pier at Atlantic City, N. J., June 9-16, inclusive. In all probability Division VI—Purchases and Stores, A. R. A., will hold its annual convention at Atlantic City at the same time.

Railway Engineers' Battalion Plans Recruiting

The officers of the 609th Railway Engineers' Battalion, on the Chicago, Milwaukee & St. Paul, the personnel of which was brought up to war strength some time ago, met at Minneapolis, Minn., on September 18, to perfect plans for recruiting non-commissioned officers and men and for completing the organization. Twenty-three officers were present, among whom were three company commanders. The plans call for the enlistment of 200 men during the coming year. Norman A. Ryan, superintendent of the St. Paul, at Terre Haute, Ind., is the commanding officer of the battalion.

Dining-Car Superintendents

G. M. Hart, superintendent of dining cars of the Wabash, was elected president of the American Association of Superintendents of Dining Cars at the annual meeting of the association in St. Louis, Mo., on October 6. Other officers elected were S. W. Derr, Reading, vice-president; T. W. Welsh, Chicago, North Shore & Milwaukee, secretary-treasurer; F. W. McIntosh, Chicago & Alton, C. H. Shircliffe, Chicago & North Western, and H. W. McAbee, Denver & Rio Grande Western, members of the executive committee. The 1926 convention will be held in Baltimore, Md.

Cummins to Introduce New Consolidation Law

Senator A. B. Cummins, of Iowa, on his return to Washington, has announced his intention of introducing at the coming session of Congress a new bill to amend the consolidation provisions of the transportation act, designed to expedite railway consolidations. He would fix a period for voluntary action, within which the Interstate Commerce Commission would be empowered to approve plans proposed by the railways without reference to any preconceived general plan, but with some provision for governmental pressure to force consolidations after the expiration of the voluntary period. He is planning some modifications of the bill to this effect which was introduced at the last session. Senator Cummins is also considering an amendment of the transportation act to provide for recapture of all excess earnings above six per cent on valuation, and the distribution of the excess among roads earning less than six per cent.

No Employees Killed in Two Years

The Northwestern Pacific, operating 500 miles of road with 2,500 employees, has not had an employee killed in an accident while on duty for over two years, the last employee fatality having occurred on September 24, 1923. The record of employees injured in 1924 showed an improvement of 32 per cent over 1923; and a 17 per cent reduction as compared with the preceding five years.

William S. Wollner, general safety agent, reports that the road has not had a passenger killed in a train accident in the seven years that it has maintained a safety organization, although during this period eight passengers lost their lives in "train service" accidents, while trying to board or leave moving trains.

Labor Board Wage Hearings

The Railroad Labor Board began, this week, hearings on the application of maintenance-of-way employees of 29 railroads for five cents an hour increase in their pay. Among the roads affected by this application are the Ann Arbor; Baltimore & Ohio; Central of New Jersey; Chicago & North Western; Illinois Central; New York, Chicago & St. Louis; Louisville & Nashville; Michigan Central; Missouri-Kansas-Texas; Mobile & Ohio; Nashville, Chattanooga & St. Louis; New York Central and subsidiaries; New York, New Haven & Hartford; Pere Marquette; Pennsylvania; Wabash.

The Railroad Labor Board on October 16 began hearings on the application of the train dispatchers of seven roads for various changes in working rules. This application was noticed in the *Railway Age* of October 10.

Several Submissions Filed with the Labor Board

A protest against the reduction in wages, the elimination of time and one-half for overtime, and other modifications of rules, has been filed by the Order of Railway Conductors, the Brotherhood of Railroad Trainmen, the Brotherhood of Locomotive Firemen and Enginemen, and the Brotherhood of Locomotive Engineers of the St. Johnsbury & Lake Champlain. The Order of Railway Conductors and the Brotherhood of Railroad Trainmen on the Cumberland & Pennsylvania have filed a request for increase in pay.

The International Brotherhood of Firemen and Oilers on the Seaboard Air Line has submitted a dispute relative to the revision of the agreement governing rules and working conditions. The Railroad Yardmasters of America on the Southern Pacific have applied for new rules and rates of pay for yardmasters. The International Brotherhood of Firemen and Oilers on the Chesapeake & Ohio has petitioned for a hearing in the matter of a dispute as to working schedules and rules.

Railroad Officers Indicted

On October 9 the federal grand jury in New York City returned indictments against the Alaska Anthracite Railroad Company against Charles D. Davis, former general manager and against George V. Whittle, president of the railroad, on charges of violations of the interstate commerce act, section 20a, which requires common carriers to obtain authority from the Interstate Commerce Commission before they issue and sell stocks and bonds. The indictments allege that the railroad issued $1,500,000 of gold bonds pursuant to the commission's order, but sold about half of them at figures much lower than 90 per cent of par, the minimum price fixed by the commission, and that Davis and Whittle concurred in those sales, which are said to have been made at 40, 77½ and 80. The evidence was laid before the grand jury by Z. W. Scott, attorney for the I. C. C. R. B. Sturm, one of the commission's special agents, appeared as a witness on behalf of the government.

B. & M. Taxes in New Hampshire

The Boston & Maine has filed with the New Hampshire Tax Commission an appeal from the assessment under which its taxes in New Hampshire were increased this year $28,473, to $882,843. The assessors have made some allowance for light traffic density on certain branch lines, but no allowance whatever on main lines of light traffic. It is a serious question, says the road, as to how much longer, and to what extent, it will be possible under present conditions to operate a large portion of the B & M trackage in New Hampshire. The road's valuation, if based on average market value of securities, and apportioned to New Hampshire strictly on a trackage basis, would allow for that state a valuation of only $19,937,178, as compared with over 32 millions the total on the State's books. At the present rate of $26.90 per thousand this would amount to a tax of only $536,310 instead of $882,843. But a trackage basis would not be equitable because the greater proportion of the trackage in the State is of so light a degree of traffic density that much of it can be operated only at a continuing annual loss of large amount.

To Encourage Safer Operation of Track Motor Cars

The illustration herewith is a reproduction of a brass emblem, the original of which is enameled in purple and red, which is offered by the Atlantic Coast Line to each employee or officer operating a track motor car who goes through an entire cal-

endar year without an accident to himself, his employees or the car. The emblem, 4½ in. in diameter, is reduced in the illustration about two-thirds in height and width. It is to be attached to the car, together with a year plate, arranged as shown. An operator who makes a perfect record for two successive years will have two year plates; three years, three plates, and so on.

Railroads Argue for Right to Construct Extensions

The Southern Pacific on the one hand and the Great Northern and the Northern Pacific on the other hand, began a sharp struggle for supremacy in eastern Oregon at a hearing on applications for permission to construct extensions in that territory which opened before Charles B. Mahaffie, director of the finance bureau of the Interstate Commerce Commission in Portland, Ore., on October 5. The Southern Pacific is asking permission to build from Klamath Falls, Ore., on the new Natron cutoff, southeast to a connection with the Nevada-California-Oregon, which it controls, at Alturas, Calif. This extension, in connection with existing lines, would give the Southern Pacific a direct line from Oregon via the Union Pacific and Ogden, Utah, to the east approximately 200 miles shorter than any present route. The Southern Pacific application also asks approval of its acquisition of control of the Nevada-California-Oregon by stock ownership and for the construction of two branches in the vicinity of Sprague river, Oregon. Opposing these proposals are the Great Northern and the Northern Pacific whose subsidiary, the Oregon Trunk, is asking authority to build an extension from Bend, Oregon, southwest to Klamath Falls.

The application of the Oregon Trunk is supported by large timber interests in the northwest, which want an outlet from their timber holdings to their northern markets. The Oregon Public Service Commission likewise favors the application of the Oregon Trunk. Ralph Budd, president of the Great Northern, was one of the witnesses for the Oregon Trunk.

The Southern Pacific is backed in its plea by the Railroad Commission of California. William Sproule, president of the Southern Pacific, stated the case for his company. He summarized the reasons for the proposed extension, stating that the Cascade and Klamath region would be better served through the Natron cutoff; and that the admission of a competitor such as the Oregon Trunk into Southern Pacific territory would be disastrous. Witnesses for the Oregon Trunk, on the other hand, declared that its extension would connect the two great lumber districts of Oregon and would make the Oregon Trunk, which at present has little economic necessity, a valuable line with greatly increased earnings.

The Southern Pacific is involved in another hearing at Brownsville, Tex., where Thomas F. Woodlock, interstate commerce commissioner, is conducting a hearing on the application of the San Antonio & Aransas Pass, a Southern Pacific subsidiary, for authority to construct a line into the lower Rio Grande territory. This application is opposed by the Missouri Pacific, whose controlled lines, the International-Great Northern and the Gulf Coast Lines, now occupy that territory.

A Gold Medal for Frankness

The Pittsburgh Railways Company, which operates street cars in and about Pittsburgh, Pa., has been awarded the Charles A. Coffin medal and prize for 1925. This award consists of a gold medal, a certificate of award and $1,000 in cash. This medal is awarded annually by the Charles A. Coffin Foundation, established in 1922 by the General Electric Company, and is given to the electric railway which has excelled in outstanding accomplishments during the year. The Pittsburgh Railways Company is notably frank in its intercourse with the public and uses every available kind of paid advertising, including newspaper, car-card and billboard space. Public talks have been used extensively in telling the company's story. From February 1, 1924, to June 23, 1925, members of the commercial department gave 282 addresses, and during the same period operating officers of the transportation department appeared before 540 public meetings. Various kinds of fares have been put into effect, and the weekly pass has been used effectively; also, the Sunday pass, which sells for 25 cents and permits the holder to take an unlimited number of rides on that one day.

The Long Locomotive Run on the Great Northern

A note from the Great Northern gives a few additional details of the long run made by oil-burning locomotive No. 2517, which was reported in the *Railway Age* of October 10, page 668. The total distance is given as 3,571 miles and the time on the road as

Mountain Type Oil Burner Which Made the Record

99 hours, 45 minutes. The time of departure from St. Paul on the westward run was 9:05 a. m., making the rate of speed, westbound, about 38 miles an hour. This makes the record as follows:

Eastward—	Westward—
Seattle, 4.30 p. m., P. T., Sept. 25	St. Paul, 9.05 a. m., C. T., Sept. 28
St. Paul, 11.05 p. m., C. T., Sept. 27	Seattle, 6.15 a. m., P. T., Sept. 30

This locomotive was one of a number of the same type in regular passenger service and was not specially prepared in any way. The

18-car shipment of silk taken on this run eastward is said to have been the largest movement of the kind on record. The interest on the value of such a load of silk is several hundred dollars a day—a good reason for traveling at high speed.

A picture of the silk train is shown with the table of contents of this issue, which is on page 5 of the advertising section.

Welding Society to Meet at Boston October 21-23

The fall meeting of the American Welding Society, to be held at the Massachusetts Institute of Technology, Boston, Mass., on October 21-23, will be featured for the first time by an exhibition of welding equipment and materials. Through the co-operation of the Massachusetts Institute of Technology, much floor space has been made available in one of the engineering buildings for the purpose of holding the exhibition and every available square foot of floor space has been taken by the exhibitors. A social program has been arranged which will include features to interest the ladies.

The following is a program of the technical sessions which will be held at the Massachusetts Institute of Technology:

WEDNESDAY, OCTOBER 21

Thermit Welding, by J. H. Deppeler, chief engineer, Metal & Thermit Corporation.

Gas Welding of Power Plant Piping, by A. W. Moulder, chief engineer, Grinnell Company.

THURSDAY, OCTOBER 22

Industrial Applications of Arc Welding and Economies Effected Through Its Use. A joint paper by H. M. Hobart, chairman, Electric Arc Welding Committee, and W. Spraragen, secretary.

Meeting of the American Bureau of Welding (Research Department of the Society). Program will include a review of present activities and outline future investigations.

FRIDAY, OCTOBER 23

Selection of Materials for Welding. A series of short addresses by several prominent experts on this subject.

Manufacture of All-Steel Automobile Bodies, by J. W. Meadewcroft, general supervisor of welding, E. G. Budd Manufacturing Company.

P. R. R. Baseball Champions Win Contest with N. Y. C.

The champion baseball team of the Pennsylvania met the champion team of the New York Central in Rochester, N. Y., on October 6 and the Pennsylvania team won, 5 to 4. The Pennsylvania champion is the Philadelphia Terminal team and the New York Central Lines champion is the Indiana Harbor Belt team. The game ended a busy baseball season on both railroads in which many games were played to determine the championship on each.

The inter-railroad contest aroused wide interest and over 8,000 employees and officers of both roads attended the game at Rochester, having journeyed there in special trains furnished by the roads. W. W. Atterbury, president of the Pennsylvania, headed the P. R. R. delegation and P. E. Crowley, president of the New York Central Lines, headed the contingent from his system. The game gave the first opportunity in the field of sport to express the keen commercial rivalry between the two companies and consequently the spirit was high and the volume of the cheering was tremendous. The spirit, however, while keen, was friendly, and on many occasions the opposing sides cheered each other. The score was close, the game was a fast one and was plainly undecided until the last moment of play.

Philadelphia Terminal Division Team, the Winner

In the morning previous to the game officers of the two companies played golf at a local club and in the evening the two roads tendered a banquet to the winning team and the runner-up from each railroad at the Hotel Seneca. In addition, the chairmen of division of athletic committees, executive officers of the companies, and prominent residents of Rochester, headed by Mayor Van Zandt, were in attendance—about 500 in all. Elisha Lee, vice-president in charge of operation of the Pennsylvania, was toastmaster. Speakers included the mayor, who gave a cup to the winning team; President Crowley, who presented the Vanderbilt cup to the Indiana Harbor Belt team as the winner of the New York Central Lines championship; President Atterbury; H. W. Bramley, president of the Rochester Chamber of Commerce; Daniel M. Brady; C. T. Chapin; and President Loree of the Delaware & Hudson. Mr. Brady presented each of the players with a silver pocket knife bearing a monogram of the Pennsylvania on one side and that of the New York Central on the other.

The Indiana Harbor Belt Team—the N. Y. C. Champions

Locomotive Shipments

The Department of Commerce has made public the following table of recent locomotive shipments:

Year and month	Locomotive Shipments			Unfilled orders end of month		
	Total	Domestic	Foreign	Total	Domestic	Foreign
1923						
January	229	217	12	1,788	1,699	89
February	207	196	11	2,220	2,141	79
March	282	269	13	2,316	2,214	102
April	217	201	16	2,204	2,111	93
May	238	228	10	2,150	2,045	105
June	232	221	11	1,958	1,854	104
July	239	211	28	1,738	1,652	86
August	272	259	13	1,497	1,406	91
September	335	313	22	1,178	1,102	76
Total 9 months	2,251	2,115	136	....	....	....
1924						
January	151	147	4	376	344	32
February	99	92	7	499	466	33
March	132	128	4	534	494	40
April	73	63	10	640	586	54
May	111	93	18	643	589	54
June	145	134	11	531	462	69
July	140	130	10	483	416	67
August	139	121	18	361	306	55
September	104	79	25	386	333	53
Total 9 months	1,094	987	107	....	....	....
1925						
January	90	45	45	407	351	56
February	85	73	12	397	343	54
March	109	93	16	447	351	96
April	92	82	10	477	362	115
May	96	68	28	467	353	114
June	110	61	49	397	300	97
July	66	58	8	378	283	95
August	104	91	13	309	225	84
September	94	50	44	363	296	67
Total 9 months	846	621	225	....	....	....

Traffic News

Shipments of grain from western Canada over the Canadian Pacific since September 1 have established a record, the marketing showing an increase of 35 per cent and loadings an increase of 46.3 per cent over any similar period in the history of the road. This company has unloaded into the elevators at the head of the lakes a total of 11,000 cars of grain.

Between 2,500 and 3,000 is the estimated number of baseball fans who passed through Altoona, Pa., on the night of October 8, bound from Pittsburgh, Pa., to Washington, D. C., to see the ball game on the following day between the Washington and the Pittsburgh clubs. These passengers were in five special trains of ten to twelve cars each, mostly sleeping cars.

Tourist travel to Glacier National Park during the season ending September 15 established a record with registrations at all gateways of the park for the period June 15 to August 31 totaling 33,934, as compared with 27,329 for the same period of 1924, or an increase of 24.2 per cent. The increase in private automobile travel over 1924 was 6.6 per cent, while the increase in railroad travel was 83 per cent.

The Illinois Central has re-established the Floridan which is operated between Chicago and Miami, Fla., with a shorter schedule; one hour and 55 min. less from Miami to Chicago and two hours and 50 min. from Chicago to Miami. The train will leave Chicago at 12:25 p. m., arriving at Miami at 8:20 the second morning. It will leave Miami at 9:30 p. m. and arrive in Chicago at 4:20 the second afternoon.

The St. Louis-San Francisco has placed in service an additional fast freight train between St. Louis, Mo., and Memphis, Tenn. The train leaves St. Louis daily at noon and reaches Memphis the next morning at 3 o'clock, thereby effecting a saving of 13 hr. in comparison with present through service. Connection is made at Memphis with the Frisco's fast freight service to Birmingham, Ala.

The "Flamingo" is a new train, operated by the Louisville & Nashville, in conjunction with the Central of Georgia, and the Atlantic Coast Line, which has just been placed in service, with sleeping cars from Detroit, Mich., Cincinnati, O., and Cleveland, to Jacksonville, Fla. Southbound, the train leaves Cincinnati at 7 p. m., and arrives at Jacksonville at 9 the following night. Northbound, it leaves Jacksonville at 10 a. m. and arrives in Cincinnati at 10:25 the following morning.

Serious objections have been raised by the Midland Terminal which operates between Colorado Springs, Colo., and Cripple Creek against the application of the White Bus Line of Grand Junction, which asks the Colorado Public Utilities Commission for permission to operate a scenic bus line from Grand Junction to Colorado Springs along the old roadbed of the Colorado Midland. This road was purchased and junked by the Midland Terminal and later the roadbed was given to the state for a scenic highway.

The Southern Pacific has put on a new fast daylight train between Houston, Tex., and Dallas and Ft. Worth, known as the Sunbeam. It has a chair car to Dallas, a chair car to Ft. Worth, and a cafe observation car. The train leaves Houston daily at 12:01 noon and arrives in Dallas at 6:30 p. m. The car for Ft. Worth is detached at Ennis and arrives at Ft. Worth at 7:30 p. m. Returning, the train leaves Dallas at 12:01 noon, arriving in Houston at 6:30 p. m., while the car from Ft. Worth leaves at 11 a. m., making connections with the Sunbeam at Ennis.

The Lancaster (Pa.) freight station of the Pennsylvania Railroad shipped recently a solid train of 47 carloads of feed consigned to the Eastern Grain Company, Bangor and Portland, Me. The cars were all X29 type thus presenting a harmonious appearance and proving that even a freight train can be a thing of beauty. Eshelman & Sons, of Lancaster, ship large quantities of feed prepared from cotton seed from Texas, molasses from Cuba, soybean meal from England, beet pulp from Michigan and Italy, alfalfa from the Rocky Mountain States, corn from the Middle West and from Pennsylvania, and corn, oats, bran, middlings, malt and wheat from the Northwest.

A special course in crating and boxing was given by the Forest Products Laboratory, Madison, Wis., beginning October 12, to 25 railway and express employees. Arrangements for the course were made by the Freight Claim Division of the American Railway Association. The course was similar to the regular boxing and crating courses given by the laboratory twice yearly and included lectures on the fundamentals of scientific box and crate construction, and was supplemented by a demonstration test for various types of containers in the laboratory's testing machine. A feature of the course was a special study of methods of packing and loading, and of blocking and bracing in cars.

The St. Louis-San Francisco, in conjunction with the Seaboard Air Line and the Southern, has established a new train, known as the Sunnyland, between Kansas City, Mo., and St. Petersburg, Fla. The train leaves Kansas City at 9 a. m. daily and arrives in Memphis, Tenn., at 9:15 p. m., Atlanta, Ga., at 11:45 a. m., at Tampa at 6:15 the morning after and St. Petersburg at 8:45 a. m. Returning, it leaves St. Petersburg at 8:35 p. m., Tampa 7:55 p. m., Atlanta at 4:45 p. m., Birmingham at 11:30 p. m., Memphis at 7:50 a. m., and arrives Kansas City at 8:25 p. m. the second night. This train also has through sleeping cars to and from New Orleans via Memphis and the Illinois Central.

A total of 154,282 persons visited Yellowstone Park during 1925 as compared with 144,158 during 1924. Of these 44,786 were rail visitors, 106,329 came by automobile, 180 by motorcycle, 1,254 on horseback and on foot, and 1,733 were unclassified. Visitors from Illinois totaled 6,578, Ohio 3,948, New York 3,918 and Pennsylvania 3,648. The record for a single day occurred on July 21, when a total of 2,693 persons arrived. The previous record occurred on August 7, 1923, with a total of 2,859 visitors. A daily entrance in excess of 2,000 visitors occurred on 37 days this season as compared with 17 days in excess of 2,000 last year. During the period of heavy travel the daily number of visitors within the park varied from 8,500 to 12,500.

Southern Freight Rate Investigation

Commissioner Eastman, of the Interstate Commerce Commission, has addressed a notice to those interested in the Southern class rate investigation stating that certain southern carriers have filed with the commission a voluminous statement of reasons why they are unable and unwilling to accept the findings of the report in this case. It is requested that these findings be reconsidered and modified in many important respects. Before reaching any conclusion with respect to these various statements the commission, says Mr. Eastman, feels that an opportunity should be afforded for the expression of views by other parties of record. Such expressions may, therefore, be filed on or before November 7.

Citizens of West Palm Beach Help Unload Freight to Relieve Congestion

Three hundred citizens, according to the Florida Times-Union, united in a grand rush on Friday, October 9, to break the freight blockade of three weeks' standing, at West Palm Beach, which has caused a severe paralysis of business in that place.

"Twelve hours' concerted effort by 300 citizens, aided by 75 trucks and a traffic clearing house, have made congestion in local freight yards a thing of the past. By nightfall it was estimated that 300 cars had been unloaded. This number, railroad men said, would reduce the freight situation in West Palm Beach to normalcy.

"This action followed a resolution by the citizens' committee to unload sufficient cars to break the line which has stifled Palm Beach county for three weeks. Trucks assigned to the service carried banners giving them right of way, and 200 construction workers were released to work at the tracks. Scores were freed from city jail on promise to go to work.

"The drive was supervised by George W. Berry, representative of the Interstate Commerce Commission assigned to clear traffic in South Florida. Mr. Berry sponsored the drive, after placing

the burden of blame upon consignees who failed to co-operate with railroads in unloading goods. The clearing house will continue to function until congestion is ended."

Eastern Freight Rate Investigation Adjourns

The I. C. C. hearing on the petition of carriers for an upward revision of freight rates in Official Classification territory, which was started in Chicago on September 21, was adjourned on October 8, subject to call by the commission. Opposition to the revision was voiced by representatives of the Burlington (Ia.) Shippers' Association, and the chamber of commerce of Mason City, Ia., on the last two days of the hearing. C. E. Hochstedler, assistant director of the Chicago Chamber of Commerce, submitted an exhibit on rail and water rates, showing the ratio of the differentials by lake and rail routes, to the standard all-rail rates since 1900, in which he pointed out that notwithstanding the several general increases in the all-rail rates, the differential on the New York-Chicago rate has been reduced eight cents a hundred pounds or 38 per cent, since 1900. Contrasted with the substantial increase in the rail tonnage originating on lines in the eastern district since 1901, the receipts of package freight at the Chicago harbor have decreased 42 per cent.

Program for Western Freight Rate Hearing

The Interstate Commerce Commission has issued a notice announcing that further hearings in No. 17,000—Rate Structure Investigation, and Ex Parte 87—Revenues in Western District, will be held at Chicago on October 26 before Chairman Aitchison; at Denver on November 9, before Examiner W. H. Wagner; at San Francisco on November 16 before Examiner Wagner; at Minneapolis on November 30 before Examiner J. B. Keeler; at Dallas on December 7 before Examiner Keeler; and at Kansas City on January 4 before Commissioner Aitchison. The notice also says that at the hearings to be held in Chicago, after L. W. Baldwin, president of the Missouri Pacific has testified, he and such witnesses as testified at the original hearings in September at Chicago and were not cross-examined will be available for cross-examination.

After the conclusion of the cross-examination of such witnesses the testimony of witnesses for other parties will be received at Chicago up to and including November 7. At Denver, San Francisco, Minneapolis, and Dallas witnesses will be heard for parties other than the carriers, beginning on the dates above indicated. In response to requests therefor, time will be accorded at Minneapolis for the Northern States Power Company to present testimony relating to coal rates; at Dallas for the presentation of testimony concerning the suggested establishment of a new rate group embracing certain portions of the Southwest; at Kansas City for the presentation of testimony on the part of the various State commissions, and thereafter testimony relating to lumber, coal, sand, gravel and rock, in the order named. Other parties desiring to introduce testimony at any of the above points will be heard. If the time available at other points is insufficient to receive all the testimony desired to be introduced, opportunity will be afforded to introduce further testimony at Kansas City, at which point the hearings will conclude. These hearings will be confined to the purposes outlined in the previous notices.

The commission has denied a petition of the Louisiana Public Service Commission to dismiss the application of the western carriers for increased rates but has permitted the Louisiana commission to intervene and be treated as a party to the case, provided that this permission shall not be construed to allow intervener to introduce evidence which will unduly broaden the issues raised in the proceeding.

EVENING LESSONS ON MAKING CONCRETE.—In its campaign for the promotion of improved practices in making concrete, the Portland Cement Association has developed a short course of instruction in concrete to be given by its representatives in various parts of the country. These courses comprise evening classes for a period of two weeks covering such subjects as the water-cement ratio, the analysis of aggregates, the designing of mixtures, and the making and testing of specimens. Lessons have been given thus far at Birmingham, Ala., Montgomery, Ala., Atlanta, Ga., and New Orleans.

Commission and Court News

Court News

In Texas, a railroad company by condemnation of a right of way secures only an easement, but it may acquire a fee-simple estate by purchase. When it acquires a fee-simple estate, its right to use it, the Circuit Court of Appeals, Fifth Circuit, holds, is as absolute and unrestricted as that of an individual, at least so long as the state does not complain, and it is immaterial whether or not the land so held is in its whole extent used as right of way. A deed to a strip 100 feet wide "through and over" land described was held to convey fee-simple title and not a mere easement, the word "over" being synonymous with "through" and therefore surplusage.—Kynero v. Hulen, 5 Fed. (2d) 160.

The federal district court for western Louisiana holds that logging cars, though used only in intrastate commerce, run over the tracks of an interstate railroad under control of the railroad's train dispatcher, were within the Safety Appliance Act of 1893, as amended by the acts of 1896 and 1903, the latter declaring that its provisions should apply to all trains, etc., used on any railroad engaged in interstate commerce. It was held immaterial that the cars belonged to another corporation, the penalty being imposed upon carriers who use or permit to be used any defective locomotives or cars upon their tracks. These cars had couplers different from the M. C. B. standard, but were operated in trains by themselves, never with ordinary cars.—U. S. v. G. C. & S. F., 4 Fed. (2d) 722.

Commission's Power to Fix Minimum Rates

In a suit to enjoin an order of the Interstate Commerce Commission in Salt Cases of 1923, 92 I. C. C. 388 (various aspects of the controversy had engaged the attention of the commission earlier. See 66 I. C. C. 81; 69 I. C. C. 312; 69 I. C. C. 745; 74 I. C. C. 409) fixing a minimum freight rate for salt from plaintiffs' salt mines in Louisiana to Chicago and other points, plaintiffs' chief grievance was the increase in the minimum rate and in the differential over the Detroit to Chicago rate and other rates. The proceedings involved practically all producers, shippers and interstate carriers of salt east of the Rocky Mountains. No other interested producers or carriers complained of the order.

Plaintiffs' chief contention was that the commission exceeded its powers. The federal district court for northern Ohio, Eastern division, holds that the enlarged power conferred by amended sections 13 and 15, and section 15a added by the Transportation Act, 1920, authorized the commission to raise the rates, not merely because noncompensatory to the carrier receiving them, but because they are unjust or unreasonable from the point of view of other carriers and localities. New section 15a empowers the commission to initiate, modify, establish or adjust rates, so that carriers as a whole, or in rate groups or territories, will earn an actual aggregate net income sufficient to give a fair return upon the aggregate value of the carrier's property. This section also limits the earnings going to the carrier, contains provisions for the so-called recapture of excess earnings, and provides for relief to the weaker and less profitable railway systems.

The court agreed with the commission that no different tests or standards are prescribed for the determination of a just and reasonable minimum rate than for a just and reasonable maximum rate, and that the minimum rate-making power would be ineffectual if Congress intended that it should be used only in cases where the rate assailed had been proved with mathematical exactness to be less than the cost of service. Such a test is impracticable of application to specific rates on a single commodity.

Factors in fixing minimum as in fixing maximum rates include comparisons of going rates on the same commodity in the same or similar territories, the relation of the rates to distances, the revenue per car mile and ton mile, variations in traffic density, and the peculiarities in transportation which affect transportation costs in general. The bill was dismissed.—Jefferson Island Salt Mining Co. v. United States, 6 Fed. (2d) 315.

Foreign Railway News

Soviet Plans Increased Locomotive Construction

The Commissariat for Transport of the Soviet Union has placed an order for 250 railroad locomotives, which the Chief Metals Department has distributed among the various locomotive building plants in the country, according to a report issued by the Russian Information Bureau in Washington. The locomotives are to be delivered during the next twelve months.

The Chief Metals Department, it is said, has laid down a plan for an accelerated output of locomotives and freight cars during the next few years. During the six years from 1925 to 1931 locomotives to the number of 4509 will be built in Soviet factories. During the four fiscal years beginning October 1, 1925, 25,850 freight cars will be constructed, increasing from 2500 during the current fiscal year to 10,650 during the fiscal year 1928-29.

German Competition Embarrasses Swedish Car Builders

In reply to a request for tenders by the Swedish Railway Administration for 300 ore cars to be used on the electrified railway from Lulea to Riksgransen, Swedish car builders bid 10,775 crowns per car, reports Commercial Attaché Klath at Stockholm. As these bids were considered too high, new bids were requested from both domestic and foreign concerns. The Swedish factories then reduced their bids, first to 9,050 and later to 8,200 crowns per car, on condition that the entire order for 300 cars be placed with Swedish firms.

Severe German competition made it impossible for the railway administration to do this, as the Wagenring G. m. b. H. bid 5,200 crowns per car fully complete and delivered f. o. b. Sassnitz. A duty of 920 crowns per car left the cost still 2,000 crowns below the lowest Swedish bid.

The government finally effected a compromise by giving domestic factories an order for 100 cars at 8,500 crowns and the German firm a contract for 100 cars at the price quoted. The original plan to purchase 300 cars was reduced to 200 when the electrified railway found it could move the smaller number of cars fast enough to take care of increased ore shipments.

South African Electrification

The South African Railways have completed the electrification of their line from Glencoe Junction to Pietermaritzburg, 171 miles. The line is equipped with automatic substations and is the largest railroad electrification in the world to be so equipped. The road experienced such an increase in business that extensions of facilities became imperative. There was a choice between double tracking or electrification, and the engineers decided to electrify. This is the first railway electrification in South Africa, and is being followed by the electrification of the Capetown suburban lines.

Twelve 3,000-volt automatic substations were required in electrifying the railroad. Standard three-unit sets of 2,000-kw. capacity are used in all stations; four stations being equipped with one machine each, seven with two machines, and one with three machines. The power is generated at Colenso, 112 miles from Pietermaritzburg. The station equipment includes five turbo-generator sets, each with a continuous rated output of 12,000 kw. at 6,600 volts, three phase, 50 cycles. Transmission is at 88,000 volts. At the substations the power is reduced to 6,600 volts and converted to 3,000 volts direct current by the synchronous motor-generators. Provision is made for the operation of all these sets inverted, in case the regenerated current from the locomotives exceeds the requirements of other trains taking power. The average substation spacing is 15½ miles, and there is practically no stub-end feed since a substation is located at both Glencoe and Pietermaritzburg. The substation equipment was furnished jointly by the British Thomson-Houston Company and the International General Electric Company. Each of the automatic equipments is designed for local and remote control.

The reports of Merz & McLellan, the consulting engineers who recommended electrification rather than double tracking the Natal lines, emphasized several advantages to be gained thereby, as follows: Electrification required no more time than would have double tracking. The net capital outlay was small when compared with the annual saving in working expenses resulting from electrification. There are several tunnels, some very long and one or more through which it would not be feasible to double head steam trains. Electrification eliminated the danger of grass fires and the expense thereby entailed in applying fire breaks outside the fence. Short adjoining lines can be electrified at comparatively small expense. Many of these branch lines have severe grades and are difficult to operate with steam equipment. Fewer trains are required, and more uniform speeds are possible. The coal formerly used for locomotive purposes is available for shipment, and low grade fuel formerly regarded as waste is utilized for the power station.

The present freight traffic approximates 20,000 gross tons per day from Glencoe southward, together with some passenger traffic. The estimates for electrical operation are based on the assumption of 30,000 gross tons daily except Sunday in the southward direction, and approximately half this tonnage northward.

The Railway Situation in Ireland

The passing of the interim dividends by the Great Southern Railway Company has drawn attention to the parlous financial condition of the chief Irish railway, says the Times (London). The railways were constructed by a number of small private companies. Many of these independent enterprises fell into bankruptcy and were amalgamated with, or absorbed by, the larger companies, but as many as 28 independent companies survived until the war. These companies operated only 3,454 miles of line, and it is obvious that a railway system of this kind must have been unnecessarily wasteful.

Ireland is a rather unpromising country from the railwayman's point of view. All the principal manufacturing centers are on the seaboard, and consequently the haulage of the raw materials of manufacture is inconsiderable. The mineral traffic is very small, and there are few inland towns of any size or importance. The density of traffic is light and the average journey short. When we add to these disadvantages the fact that the population of Ireland decreased steadily during the whole period when the railways were in operation, we must be surprised that the companies succeeded as well as they did. It is no small evidence of good management in the face of difficulties that the average dividend paid by the Irish railways before the war was higher than that paid by the railways of England and Scotland.

Nevertheless, the railways never gave complete satisfaction to the public. Complaints were common that the services were bad and that rates were excessive, and particular complaint was directed against the alleged favoring of cross-Channel traffic by means of preferential through rates. The question how far more satisfactory services could be attained by means of the reduction of the number of independent companies was the subject of more than one public inquiry.

No action had been taken on any of these recommendations when the war broke out in 1914. The Irish railways were not interfered with by the imperial government during the first couple of years of the war, but they were put under government control on January 1, 1917, the government guaranteeing the net receipts for 1913, which was, by the way, an exceptionally good year. The control period lasted until August 15, 1921, when the railways were handed back to their proprietors. The sum of £3,000,000 was paid to the railways in settlement of all outstanding claims in respect of control, including arrears of maintenance. Meanwhile large increases had taken place in the rates of wages and of charges for passengers and freight. The wages were raised virtually to English levels, the general rate of increase averaging about 200 per cent. What was even more onerous for the companies than the increase of wages was the application to Ireland of the newly introduced British conditions regarding hours of work. Freight charges were increased by 50 per cent in January, 1920, and by 120 per cent in September of the same year. In 1918 passenger fares were increased by 50 per cent and in 1920 the original fares were doubled. It will thus be seen that the rate of increase of wages was much greater than that of railway charges. The commission appointed by the provisional government in 1922 reported

that "the war and government control of the railways have definitely, and, as we believe, permanently, worsened the position of the Irish railway stockholders."

Immediately on the cessation of control the companies made an effort to reduce wages, but the trade unions were adamant in their opposition, and the political disturbance in the country at the time made it a matter of supreme importance that a railway strike should be avoided at all costs. The award of the tribunal recommending substantial reductions in wages, was therefore not enforced, and the old wages and conditions as to hours have been continued, subject to some minor modifications. The commission appointed by the provisional government had recommended that the railways should be purchased by the government and managed by an independent national board, but this report went the way of its predecessors.

In 1924 the government's Railways Act was passed. This Act, which was modeled largely on the British Act of 1921, provided for the amalgamation or absorption of all the railways whose lines lay wholly in the Free State. The Great Northern Railway (Ireland) was therefore left out of the scheme. The terms were to be settled by agreement among the companies concerned, subject to the confirmation of the tribunal set up by the Act. This tribunal was also charged with the duty of making an immediate preliminary review of the existing government's policy in regard to the railways in a speech in the Dail, in which he said, that without amalgamation many of the smaller lines would have had to close down, and insisted that the fall in the railway receipts was not altogether due to the reduction in rates, because an almost equally great fall had been experienced by the Great Northern Railway (Ireland), whose rates had been voluntarily reduced earlier than the date of the reduction on the amalgamated lines. Some part of the reduction must therefore have been caused by a decrease in traffic, for which, of course, the government could not be held responsible. He asked the press and the public to refrain from drawing pessimistic conclusions from the study of the revenue side of the railway accounts alone, and to postpone the forming of a judgment on the result of the government's policy until fuller information was published, especially with regard to the economies effected in expenditure owing to amalgamation.

The Free State is not alone in its troubles. The position of the railways in Northern Ireland is causing considerable anxiety to their shareholders. The lines of the old Northern Counties Committee are now part of the charges, "with a view to the modification of such charges having regard to the circumstances under which increased charges were authorized as from September 1, 1920, and to any change in such circumstances, including any reduction in working expenses since that date." No time was lost in putting the Act into force. Schemes for amalgamation and absorption were approved, and the preliminary revision of rates effected, whereby the 120 per cent and 100 per cent increases in freight and passenger rates were reduced to 100 per cent and 75 per cent respectively. The new amalgamated Great Southern Railway, with its new charges, came into being on January 1, 1925.

The first six months of the present year witnessed a very serious falling off in the weekly revenue of the railways and a heavy slump in all classes of the stock of the amalgamated company. In May the Irish Railway Wages Board met to consider an application for a reduction in wages, and the chairman of the board, Mr. Justice Wylie, found "that a reduction of wages is necessary if the railways are to continue to work." At the end of June it became known that the traffic receipts for the first six months of the year had decreased by the huge sum of £322,940. In July the Minister of Industry and Commerce defended the London Midland & Scottish systems, but the other railways of Northern Ireland —namely, the Belfast & County Down and the Great Northern, a large part of which is in the Free State—have been excluded from both the British and Irish amalgamations. The weekly receipts of these railways have been heavily down this year, and this decrease, unlike that on the Great Southern, must have been caused by diminished traffic, because the rates on the Northern lines were reduced voluntarily by the companies in 1921 and 1922 and did not suffer any further reduction on January 1 of this year. The competition of road transport is exceptionally severe in Northern Ireland, especially in the neighborhood of Belfast. At the time of the amalgamation of the railways of the Free State many people were strongly of opinion that the railways of the whole of Ireland should be dealt with together and grouped into one or, as some preferred, two systems. Other counsels prevailed, and the partition between north and south was applied to the railways.

Equipment and Supplies

Locomotives

New York Central Orders 100 Locomotives

The New York Central has ordered from the American Locomotive Company 100 Mohawk type locomotives. These locomotives will have 27 in. by 30 in. cylinders and a total weight in working order of 368,000 lb. This order of the New York Central is the largest order for locomotives placed in many months.

THE UNION PACIFIC contemplates buying a new three-cylinder locomotive with a 4-12-2 wheel arrangement.

ULEN & Co., Colombia, South America, has ordered six Mikado type locomotives from the Baldwin Locomotive Works.

THE OESTE DE MINAS E. DE F., BRAZIL, has ordered 7 Pacific type locomotives from the Baldwin Locomotive Works. One of these locomotives will have three cylinders.

THE CHILEAN STATE RAILWAYS have ordered from the American Locomotive Company 12 Mikado type locomotives. These locomotives will have 22 in. by 28 in. cylinders and a total weight in working order of 196,000 lb.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered 10 Mountain type locomotives from the American Locomotive Company. These locomotives will be equipped with McClellan fireboxes and three of them will be three-cylinder.

THE CERRO DE PASCO COPPER CORPORATION (Peru) has ordered from the American Locomotive Company two consolidation type locomotives. These locomotives will have 21 in. by 28 in. cylinders and a total weight in working order of 168,000 lb.

THE CHESAPEAKE & OHIO has ordered from the American Locomotive Company 5 Pacific type locomotives. These locomotives will have 27 in. by 28 in. cylinders and a total weight in working order of 336,000 lb. The authorization for this equipment was reported in the *Railway Age* of September 5.

THE TENNESSEE CENTRAL has ordered from the American Locomotive Company four Mountain type locomotives. These locomotives will have 23 in. by 28 in. cylinders and a total weight in working order of 264,000 lb. The inquiry for this equipment was reported in the *Railway Age* of October 3.

Freight Cars

UNITED RAILWAYS OF HAVANA, see HAVANA CENTRAL.

THE LITCHFIELD & MADISON has ordered 50 gondola car bodies from the Ryan Car Company.

THE CENTRAL OF NEW JERSEY has ordered 10 air dump cars from the Magor Car Corporation.

THE ST. LOUIS-SAN FRANCISCO is rebuilding 650, 40-ton box cars at the rate of 80 cars per month.

THE MISSOURI-KANSAS-TEXAS is contemplating the construction of 500 automobile cars in its own shops.

THE CUBA RAILROAD COMPANY contemplates coming in the market soon for some box cars, ballast cars and work cars.

THE SHAFFER OIL COMPANY, Tulsa, Okla., contemplates buying or leasing 250 tank cars of 8,000-gal. and 10,000-gal. capacity.

THE VALVOLINE OIL COMPANY, Butler, Pa., has ordered 10, 8,000-gal. capacity tank cars from the Standard Tank Car Company.

THE NEW YORK CENTRAL will have 200 box cars converted into flat cars at the shops of the Illinois Car & Manufacturing Company, Hammond, Ind.

THE INDIAN REFINING COMPANY, Lawrenceville, Ill., has ordered 10 triple compartment, 6,000-gal. capacity tank cars from the Standard Tank Car Company.

THE DENVER & RIO GRANDE WESTERN is inquiring for 200 automobile cars of 50 tons' capacity and 500 general service gondola cars of from 50 to 70 tons' capacity.

THE ILLINOIS CENTRAL has ordered 200 flat cars from the Standard Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of September 12.

THE HAVANA CENTRAL has ordered for the United Railways of Havana 250 box cars and 145 flat cars, all of 30 tons' capacity, from the American Car & Foundry Company. The inquiry for this equipment was reported in the *Railway Age* of August 29.

THE MISSOURI PACIFIC is now inquiring for 1,500 box cars of 40 tons' capacity, 250 hopper cars of 50 tons' capacity, 250 automobile cars, 50 ft. long, and 250 automobile cars, 40 ft. 6 in. long. Authorization for 3,000 cars for this road and the International-Great Northern was reported in the *Railway Age* of October 10.

Passenger Cars

THE MISSOURI PACIFIC is inquiring for five dining cars.

THE ST. LOUIS-SAN FRANCISCO is inquiring for 12 steel coaches.

THE LONG ISLAND contemplates coming in the market soon for about 20 steel coaches for steam line service.

THE CUBA RAILROAD COMPANY contemplates coming in the market soon for some first-class and second-class passenger cars.

Iron and Steel

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered a 150-foot through riveted truss span for use at Marquette, Iowa, from the American Bridge Company.

Machinery and Tools

THE DENVER & SALT LAKE has ordered a grinder and a turret lathe from Manning, Maxwell & Moore, Inc.

THE MARION STEAM SHOVEL COMPANY has ordered a cylinder grinder from Manning, Maxwell & Moore, Inc.

THE ILLINOIS CENTRAL has ordered one 15-ton pillar crane for use at Springfield, Ill., from the Whiting Corporation.

THE GULF COAST LINES have ordered a 5-ton, 27-ft. span electric traveling crane, from the Niles-Bement-Pond Company.

THE SOUTHERN PACIFIC LINES have ordered a Bridgeport locomotive guide bar grinder from Manning, Maxwell & Moore, Inc.

THE AMERICAN SMELTING & REFINING COMPANY has ordered a 30-ton electric overhead crane from Manning, Maxwell & Moore, Inc.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered a heat treating furnace and a Chambersburg press from Manning, Maxwell & Moore, Inc.

THE WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, East Pittsburgh, Pa., has ordered a horizontal boring mill from Manning, Maxwell & Moore, Inc.

THE NORFOLK & WESTERN is inquiring for about 80 machine tools, including the following:

Horizontal boring and drilling machine.
3-ft. radial drill.
5, 16-in. vertical spindle drills.
13, double-end emory floor grinders.
2 Universal reamers and cutters.
4 turret lathes.
12 engine lathes.
2 axle lathes.
Some milling machines.
1 frog and switch planer.
1 multiple punch and shear.
1, 50-ton press.
Some heavy duty planers.
1, 90-in. heavy duty locomotive wheel quartering machine.
1 pneumatic riveter.
2 shapers.

Lackawanna Purchases New Shop Equipment

The Delaware, Lackawanna & Western has purchased the following new machine tools for which the installation has recently been completed in its various shops:

SECAUCUS, N. J., CAR SHOP
Iron frame standard rip saw and table.

KINGSLAND, N. J., LOCOMOTIVE SHOP
Tilting reverberatory melting furnace.
Superheater pneumatic flue welding machine.
Flue welding furnace for preheating and welding superheater tubes.
Combination hot saw and tube expander.

SCRANTON, PA., LOCOMOTIVE SHOP
90-in. locomotive axle journal turning lathe.
86-in. heavy duty face grinder.
11-in. by 5-ft. heavy duty lathe.
72-in. plain right line radial drill.
16-in. by 40-in. by 120-in. piston rod grinder.
Flat turret lathe.
Drill grinding machine.
Universal and tool grinding machine.
32-in. heavy duty shaper.
Universal saw bench.
4-in. pipe threading and cutting machine.
Blacksmith hammer.
Universal grinding machine.

SCRANTON, PA., ENGINEHOUSE
Electric arc welder, portable type.

HAMPTON, PA. (SCRANTON, PA.), ENGINEHOUSE
Single spindle high speed sensitive drill press.

KINGSTON, PA., ENGINEHOUSE
50-ton vertical hydraulic forcing, bushing and bending press.

KEYSER VALLEY (SCRANTON PA.) CAR SHOP
Single spindle high speed sensitive drill press.
2-spindle friezing and shaping machine.
48-in. by 21-in. compression type pneumatic yoke riveter.
4-in. heading, upsetting and forging machine.
Blue-printing machine.
Power brake.
Power shear.
Car type annealing furnace.

EAST BUFFALO, N. Y., LOCOMOTIVE SHOPS
60-in. by 60-in. by 12-ft. metal planer.
2¼-in. by 24-in. flat turret lathe.
84-in. heavy vertical boring and turning mill.
62-in. horizontal boring and drilling machine.
36-in. heavy duty, new type railroad draw-cut shaper.
11-in. by 5-ft heavy duty lathe.

GRAVEL PLACE, PA., ENGINEHOUSE
12½-ton locomotive crane.

All of these machine tools are motor driven and are provided with push button control.

LOCOMOTIVE REPAIR SITUATION

Date, 1924	No. locomotives on line	No. serviceable	No. stored serviceable	No. req. classified repairs	Per cent	No. req. running repairs	Per cent	Total req. repairs	Per cent
February 1	64,377	53,586	4,116	5,919	9.2	4,872	7.6	10,791	16.8
April 1	64,363	52,805	4,648	6,128	9.5	5,430	8.4	11,558	17.9
July 1	64,416	53,382	7,117	6,035	9.4	4,999	7.7	11,034	17.1
October 1	64,538	53,209	5,424	6,175	9.6	5,154	8.0	11,329	17.6
January 1, 1925	64,384	53,118	4,849	5,927	9.2	5,339	8.3	11,266	17.5
February 1	64,308	52,994	4,220	6,143	9.6	5,171	8.0	11,314	17.6
March 1	64,255	52,851	4,988	6,217	9.7	5,187	8.0	11,404	17.7
April 1	64,230	52,619	6,241	6,345	9.9	5,266	8.2	11,611	18.1
May 1	64,034	52,933	6,697	6,082	9.5	5,019	7.8	11,101	17.3
June 1	63,976	53,074	6,618	5,916	9.2	4,986	7.8	10,902	17.0
July 1	63,942	53,025	6,600	5,832	9.1	5,085	8.0	10,917	17.1
August 1	63,921	53,263	6,313	5,740	9.0	4,918	7.7	10,658	16.7
September 1	63,812	53,261	5,902	5,514	8.6	5,037	7.9	10,551	16.5

Data from Car Service Division reports.

Supply Trade News

A. E. Kistner has been appointed manager of the Cincinnati office of the **Truscon Steel Company,** to succeed A. Levinson, resigned.

J. F. Morrison, of Avis, Pa., formerly with the mechanical department of the New York Central has joined the sales force of the **Joyce-Cridland Company,** Dayton, Ohio.

W. N. Agnew, traffic manager of **Worthington Pump & Machinery Corporation,** New York, has been promoted to general traffic manager, with headquarters as heretofore at New York.

The Weir Kilby Corporation has been formed through the consolidation of the Weir Frog Company, Cincinnati, O., and the Kilby Frog & Switch Company, Birmingham, Ala. Under the new organization, **O. De G. Vanderbilt, Jr.,** president of the Weir Frog Company, will be president, **E. M. Kilby,** vice-president and treasurer of the Kilby Frog & Switch Company, will be first vice-president, and **J. K. Lansdowne,** vice-president of the Weir Frog Company, will be vice-president.

The General American Tank Car Corporation has incorporated a subsidiary at New Orleans, La., known as the General American Tank Storage & Terminal Co., to facilitate the loading and unloading of petroleum, vegetable oils and other liquids handled in tank cars and ships. A dock, tracks, pipe lines and tanks have been constructed at New Orleans to handle liquids moving in export and import trade. This plant has a storage capacity of 20,000,000 gal.

The Robert June Engineering Management Organization, Detroit, Mich., has acquired control of the **Electric Flow Meter Company** at Kansas City, Mo., formerly the Hyperbo-Electro Flow Meter Company, of Chicago, and will in future operate the business under its own management with executive offices at 8835 Linwood avenue, Detroit. **Robert June** becomes president of the company, **J. M. Naiman,** formerly general manager, becomes vice-president, consulting and chief engineer and **W. W. Burden,** of the Robert June organization, treasurer.

At a recent meeting of the board of directors of the **Westinghouse Electric & Manufacturing Company, Richard B. Mellon,** of Pittsburgh, Pa., was elected a director, to fill the vacancy caused by the death of William McConway. **Edward D. Kilburn** and **Walter S. Rugg** were recently elected vice-presidents of the company; Mr. Kilburn and Mr. Rugg have been connected with the Westinghouse company for many years. Vice-president W. S. Rugg will take over the direction of Westinghouse engineering activities and vice-president and general sales manager E. D. Kilburn will direct the sales activities as arranged by **F. A. Merrick,** vice-president and general manager. Mr. Kilburn retains his office of vice-president of the Westinghouse Electric International Company. **H. D. Shute,** vice-president, will retain his direction of the commercial activities of the company including especially customer relationships, and **H. P. Davis,** vice-president, formerly in charge of engineering and manufacturing activities as applying to the strictly electrical portions of the company's business, will in future have direction over the entire manufacturing activities of the company and of the general features of the radio business including broadcasting. The duties of the other vice-presidents of the company remain unchanged.

The American Foreign Sales Corporation, a recent incorporation with office at 150 Broadway, New York City, has elected **W. G. Kaylor** president, and **G. A. Smith** secretary and treasurer. The directors include the two officers above and **F. A. Schaff,** vice-president of the Superheater Company; **C. S. Sale,** executive department, American Car & Foundry Company; **Rodney Hitt,** of Hitt, Farwell & Company, and **Samuel A. Pleasants,** of Marvin & Pleasants. The company was organized to promote the sale in foreign markets of American products and is well equipped to handle sales in foreign countries of American railway supplies and equipment. W. G. Kaylor was formerly manager for the Orient for the Westinghouse Air Brake Company and associated companies. Mr. Kaylor was born on April 18, 1883, at Indianapolis, Ind., and graduated as a mechanical engineer from Purdue university in the class of 1905. In 1908 he received a masters degree in mechanical engineering from the same university. Shortly after graduation he entered the service of the Westinghouse Air Brake Company as a special apprentice at Wilmerding, Pa. He subsequently was engaged in installing air brakes on the New York Central's all steel passenger cars. In 1907 he was instructor of motormen and engineers in the operation of electrified cars and locomotives on the New York Central and the New York, New Haven & Hartford operating out of New York City. In 1911 he was engaged in commercial engineering work for the Westinghouse Air Brake Company at New York. He also had charge of the company's export department and for about a year represented the company in South America, subsequently he represented the Air Brake Company and associated companies as manager for the Orient, with office in Tokio, Japan, and served in that capacity until November, 1924.

Concrete Mixing and Conveying Company Wins Patent Suit

On August 4, 1925, Judge Augustus N. Hand of the United States District Court of the Southern district of New York, granted an interlocutory decree in which claims 2, 4, 6, 17, 21, 22, 28, 34 and 35 of United States Letter Patent No. 1,127,660 granted to John H. MacMichael on February 9, 1915, were held valid. This decree was rendered in a suit brought by the Concrete Mixing and Conveying Company, Chicago, against the Ulen Contracting Corporation and the Shandaken Tunnel Corporation, for infringement of the MacMichael patent covering the method of elevating and transporting concrete by means of compressed air. The decree upholds all of the claims made by the complainant against the defendant.

Trade Publications

TANK PROTECTION.—Hill Hubbell & Co., San Francisco, Cal., have issued a series of 19 sheets in loose-leaf form with a binder comprising a treatise on the products of that company for the protective coating of various kinds of tanks, with particular reference to containers for corrosive materials such as brine and acids. The text matter includes descriptions of the materials, specifications for preparation of the surface, the manner of application, etc. A number of illustrations are included showing structures coated with the materials described.

DIAMOND DRILLS.—The Sullivan Machinery Company, Chicago, has issued an 80-page catalog which comprises a treatise on diamond drilling such as is required for foundation exploration, investigation of old masonry and other engineering studies not infrequently imposed on the engineering departments of railroads. The purpose and the process of diamond drilling are explained and the machinery manufactured for carrying out this work is described in detail. Specific instructions are given for the method of operation, including the process of setting the diamonds in the bits. Tables list the complete complement of equipment and tools required for each class of drill.

BOOK OF BUILDINGS.—"The Austin Book of Buildings" recently issued is the eighth edition of the general catalog of the Austin Company, Cleveland, Ohio. It is a 96-page illustrated catalog descriptive of the modern trends in design, construction and equipment of industrial and commercial buildings, also a reference book of building data for executives in charge of building projects. The following are some of the features of the new book: Cost of building trend with a chart showing seven-year period; multistory —single story building trend chart; chart showing decentralization in manufacturing and distribution; table of comparative insurance rates; chart showing how soil bearing pressure affects building costs, and a ten-page technical section covering descriptions, advantages, relative costs of various types of floors, doors, walls, roof structures, wall facings and roof waterproofings.

Railway Construction

AMERICAN EXPRESS COMPANY.—A contract has been awarded to A. Vogel & Co., San Antonio, Tex., for the construction of a one-story, brick and reinforced concrete addition to the express building at San Antonio, Tex., to cost $17,000.

CANADIAN NATIONAL.—A contract has been awarded to the Jamieson Construction Company, Ltd., Edmonton, Alta., for the laying of 7,700 ft. of pipe line at New Bridgen, Alta. The contract also calls for the construction of a frame pump house on a concrete foundation.

CANADIAN NATIONAL.—Improved facilities to take care of a prospective increase in the winter business at the port of Halifax, N. S., will be provided by the Canadian National, according to an announcement made in Ottawa last week by Sir Henry Thornton, president of the railway. Those facilities will involve the enclosing of the present unfinished sheds Nos. 21 and 22, and the construction of wooden galleries and conveyors to berths Nos. 23, 24 and 26. Removal by British marine underwriters of the previous discrimination against Halifax and in favor of such adjacent United States ports as Portland and Boston, and the encouragement by the federal government of trade through the ports both of Halifax and St. John are expected to build up a considerable business in that direction.

CANADIAN PACIFIC.—Surveys have been completed to determine the cost of a one-track tunnel between the Burrard Inlet, Vancouver, B. C., and False Creek yards, in contemplation of the construction of the tunnel by the railways jointly with the city of Vancouver, B. C. The estimate of the cost has been announced as $1,700,000.

CHICAGO & NORTH WESTERN.—Bids were closed on October 7 for the construction of a two-story brick office building, 34 ft. by 40 ft., at Milwaukee, Wis. This company also closed bids on October 7 for the construction of a 15,000 gal. per hour water treating plant at South Norfolk, Neb.

CHICAGO & NORTH WESTERN.—Application has been made to the Interstate Commerce Commission for permission to construct a connecting link between the Southern terminus of its Southern Illinois division and a point on the Litchfield & Madison, near Staunton, Ill. The control of the Litchfield & Madison was recently acquired by the Chicago & North Western.

CHICAGO, ROCK ISLAND & PACIFIC.—The Interstate Commerce Commission has extended to November 1, 1925, the date before which construction of this company's proposed Billings-Owens (Oklahoma) line must be begun.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company is constructing a tie adzing plant with company forces, at Indianapolis, Ind., at an estimated cost of $45,000.

KENTUCKY & INDIANA TERMINAL.—A contract has been awarded to the T. S. Leake Construction Company for the construction of a shop building, a storehouse and an office building at Louisville, Ky., to cost $82,000.

LOS ANGELES UNION STATION.—The California Railroad Commission will hold a hearing in Los Angeles, Cal., on November 30, on the complaint of the Central Development Association against the Southern Pacific, the Atchison, Topeka & Santa Fe and the Union Pacific, asking the commission to order the roads to join in a union passenger station in that city.

NEW YORK CENTRAL.—Announcement has been made that this company is seriously considering the erection of a new modern mail handling terminal at Albany, N. Y.

NORTHERN PACIFIC.—A contract is reported to have been awarded to the Donovan Company, St. Paul, Minn., for the construction of a dam and spillway near East Helena, Mont., to cost approximately $50,000.

OKLAHOMA & RICH MOUNTAIN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Page to Talihina, Okla., 35 miles. F. H. Dierks, Kansas City, Mo., is president of the company.

PACIFIC ELECTRIC.—The construction of two additional tracks to make a four-track line from Los Angeles, Cal., to Venice, a distance of approximately 20 miles, is reported as contemplated.

SOUTHERN PACIFIC.—Plans are reported to have been prepared for the construction of a passenger station at Calexico, Cal., to cost approximately $60,000.

SOUTHERN.—According to press reports, bids will be received on October 20 for the construction of a three-story, 138-ft. by 107 ft. office building at Charlotte, N. C. The building will be of concrete and pressed brick exterior with limestone trim, a felt and pitch roof and mastic floors on concrete. The total cost of the building will be approximately $175,000.

SOUTHERN PACIFIC.—This company has awarded a contract to the Roberts & Schaefer Company for one N. & W. type junior electric cinder plant at Globe, Ariz.

SOUTHERN PACIFIC.—Plans have been prepared for the construction of a roundhouse at Santa Barbara, Cal., to replace a building which was destroyed by an earthquake several months ago. The new roundhouse will be in mission style with stucco exterior and a red tile roof.

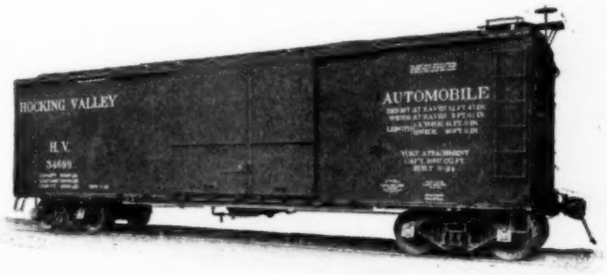
ST. LOUIS-SAN FRANCISCO.—A contract has been awarded to the Pauly Construction Company, Springfield, Mo., for the construction of a brick and concrete, one-story mail, baggage and express building at Springfield to cost $20,000, as reported in the *Railway Age* of September 5.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—This company is constructing with its own forces a two-story, 20 by 500 ft. reinforced concrete service building at 2630 Scott avenue, St. Louis, Mo., which is estimated to cost $45,000.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—A reinforced concrete viaduct to carry highway traffic across the terminal tracks at Penrose Park, St. Louis, Mo., will be constructed next year following the settlement of the dispute over the distribution of the cost between the city and the railroad. Under the agreement between the city and the railroad which has been under dispute for five years, the road will pay $125,000 of the total cost of $210,000. The Board of Public Service of St. Louis also has accepted the road's proposal to pay the entire cost of extending the Jefferson avenue viaduct north over the proposed new yard.

TEXAS & PACIFIC.—This company has awarded a contract to the V. E. Ware Company, El Paso, Tex., for the construction of a seven-stall brick roundhouse, a brick machine and blacksmith shop, a brick storeroom and a frame car repair shed at Dallas, Tex., to cost approximately $135,000.

UNION PACIFIC.—A contract has been awarded to the American Construction Company, Omaha, Neb., for the construction of an enginehouse with repair facilities at Marysville, Kan., to cost $75,000 with equipment.



40-Ton Automobile Box Car Built by the Pullman Car & Manufacturing Company

Railway Financial News

ALABAMA CENTRAL.—*Final Value.*—The Interstate Commerce Commission has issued a final valuation report as of June 30, 1917, placing the final value for rate-making purposes of the property owned and used for common-carrier purposes at $86,860.

ALTON & SOUTHERN.—*Capital Stock.*—The Interstate Commerce Commission has granted authority for this company to issue $316,200 common stock of $100 the par value, to be sold at par to the Aluminum Company of America which owns all the company's stock, the principal part of the proceeds to be used to complete four additional miles of line to Mitchell, Ill., and a smaller portion for the purchase of a locomotive.

BRISTOL.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $108,600, as of June 30, 1917.

CAPE GIRARDEAU NORTHERN.—*Foreclosure Sale.*—This company will be sold at a foreclosure sale to be held at Cape Girardeau, Mo., on November 4.

CHESAPEAKE BEACH.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes as of June 30, 1916, to be $765,000.

CHESAPEAKE & OHIO.—*Injunction Refused.*—Judge William A. Moncure in the Chancery Court at Richmond, Va., October 13, dismissed a bill by minority stockholders seeking to enjoin the road from effecting the proposed lease to the Nickel Plate System on the ground that the Interstate Commerce Commission has supreme and plenary powers in the situation under the terms of the Transportation Act. On March 26, Judge Moncure ruled that the Chesapeake & Ohio might hold its stockholders' meeting March 30, but that the proposed lease to the Nickel Plate must not be executed, even in case of Interstate Commerce Commission approval, until the court decided definitely whether the corporation had power under the Virginia statutes to enter into such an agreement. His present decision said:

"The commission is the agency of congress and, I think, has supreme and plenary power under the Transportation Act of 1920 for original hearing of the grievance of complaint, as alleged in the bill of complaint. They are interested parties, and if the order of the commission is adverse to their claims of right in the premises, they are given the right to appeal to the Federal Courts.

"For the above reasons I am of the opinion that this court is without jurisdiction to hear and determine the matters complained of in the bill; that the demurrer should be sustained and the bill dismissed."

CHICAGO & NORTH WESTERN.—*Hearing On Control of Omaha.*—The Interstate Commerce Commission has announced a hearing on this company's application for authority to acquire further control of the Chicago, St. Paul, Minneapolis & Omaha before Examiner Boles at Washington on November 3.

CHICAGO & WABASH VALLEY.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of June 30, 1915, to be $463,220.

CHICAGO, MILWAUKEE & ST. PAUL.—*Reorganization Plan Declared Operative.*—Kuhn, Loeb & Co., and the National City Company, reorganization managers, announced on October 9 that the plan for the reorganization of the Chicago, Milwaukee & St. Paul, dated June 1, had been declared operative. The announcement says that bonds and stock which are not yet deposited may be deposited without penalty on or before November 20, 1925.

Alternative Plan Offered.—The bondholders' protective committee, headed by George E. Roosevelt, of Roosevelt & Son, announced Wednesday evening the details of the rival reorganization plan which has previously been announced to be in preparation. The essentials of the new plan summarized by the committee are as follows:

1. Extension of the government loans, aggregating $55,000,000, instead of their immediate liquidation. Under the new plan the government will receive a cash payment of $5,000,000 and the remaining $50,000,000 will be liquidated serially over a period of 15 years.
2. Exchanging for bonds on which the road has defaulted of 25 per cent in fixed interest-bearing bonds and 75 per cent in participating adjustment bonds, which would permit their holders to participate in the future prosperity up to a return of 6 per cent.
3. The insuring of a reduction in the fixed interest charges of the company to a figure "well below the net earnings of the company over a long period of years."
4. Provision for future financing through the creation of a new first and refunding mortgage bond similar to that in the original plan.
5. The issuance to preferred stockholders of a new 5 per cent cumulative preferred stock, par for par.
6. Provision for an assessment against the preferred and common stock holders at the rate of $10 a share, for which will be issued, dollar for dollar, new participating adjustment mortgage bonds.

In discussing the two major points on which their plan differs from that of the reorganization managers, namely, the treatment of the government indebtedness and the provision for the holders of defaulting bonds, the Roosevelt committee says:

"The government receives a substantial cash payment, adequate security, a liberal rate of interest and the full payment of its loan in 15 years. The collateral for the balance of the government loan will consist of securities senior in lien to the securities given the stockholders for their cash assessment. This proposal will shortly be submitted to the government authorities.

"The plan is obviously more favorable to the holders of the bonds now in default than the Kuhn, Loeb plan, since these bondholders receive adequate recognition of the value of their present mortgage position. At the same time it is believed that all classes of securities and all interests concerned are treated reasonably and equitably."

The holders of the six issues of bonds now in default receive in exchange (a) new fixed interest fifty-year mortgage bonds to an amount equal to 25 per cent of their present bonds, such new bonds to carry 4 per cent interest for five years and 5 per cent thereafter; (b) 5 per cent participating adjustment bonds to an amount equal to 75 per cent of their present holdings. After the preferred stock receives 4 per cent in any year the participating adjustment mortgage bonds receive 1 per cent additional before the 5 per cent preferred is entitled to its full 5 per cent, the 5 per cent interest to be cumulative after three years from date of issue.

Fixed interest charges under the Roosevelt plan, it is stated, will amount to $1,524,567 more than under the Kuhn, Loeb plan during the first five years, and $2,101,944 more thereafter. The total interest charges, fixed and contingent, are $195,002 less under the Roosevelt plan for the first five years and $381,775 more after the first five years.

It is proposed in connection with the government loan that the $50,000,000 not paid off immediately shall be paid serially and shall bear a 4½ per cent interest rate. This indebtedness is to be secured by the deposit of $75,000,000 new fifty-year mortgage bonds of a special series carrying 5 per cent interest.

Cash requirements, owing to the extending of the government indebtedness, are $46,698,228 less than for the reorganization managers' plan.

DELAWARE & NORTHERN.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $1,417,210 as of June 30, 1916.

DELTA SOUTHERN.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $675,307 as of June 30, 1915.

DOVER & SOUTHBOUND.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of June 30, 1914, to be $170,000.

ELKIN & ALLEGHANY.—*Final Value.*—The Interstate Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $335,046, as of June 30, 1915.

FELLSMERE.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes as of June 30, 1916, to be $110,000.

LINVILLE RIVER.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $249,662, as of June 30, 1916.

MISSOURI PACIFIC.—*Negotiates for Purchase of Rio Grande Railway.*—L. W. Baldwin, president of the Missouri Pacific, is quoted as saying that negotiations will soon be concluded for the

purchase of the Rio Grande Railway, extending from Brownsville, Tex., to Point Isabel, 26 miles. The road is owned by W. T. Eldridge of Sugarland, Tex.

NEW YORK, NEW HAVEN & HARTFORD.—*Hearings on Modification of Federal Decree.*—A hearing was held on October 14 before Federal Judge Winslow of New York on the petition of the New Haven for a modification of the Sherman Law decree of 1914 so that the company might regain control of the subsidiary trolley lines which it formerly owned. E. G. Buckland, vice-president of the New Haven, testified. Decision was reserved.

ST. LOUIS SOUTHWESTERN.—*Kansas City Southern Acquires Stock.*—Announcement was made on October 14 that the Kansas City Southern had acquired from the Chicago, Rock Island & Pacific the latter's holdings of St. Louis Southwestern stock. The Kansas City Southern already owns a considerable interest in the Missouri-Kansas-Texas, so that the present step brings together three of the roads in the southwestern region, namely, the Kansas City Southern, the Katy and the Cotton Belt, having a total mileage of 5,800. It is understood that the stock purchased from the Rock Island includes $13,348,000 of the $19,893,000 outstanding preferred stock, and $1,628,000 of the $16,356,100 outstanding common, although it is possible that more has been purchased in the open market. The acquisition of the Cotton Belt stock by the Kansas City Southern is looked upon as another step towards the building up of a new Loree system in the Southwest, supplementing possibly the proposed Loree system in the Northeast. A statement issued by Mr. Loree said:

"This step was contemplated when the Kansas City Southern acquired, a few months ago, an interest in the Missouri-Kansas-Texas Railroad Company. It is hoped that the three properties, with certain possible additions, will constitute a system acceptable to the Interstate Commerce Commission under the Transportation Act, and invaluable in the rendition of efficient transportation service in southwestern territory."

The Rock Island acquired the interest in Cotton Belt stock, which it has now sold to the Kansas City Southern, last March by purchasing the interests of Edwin Gould. In August, C. V. Burnside, assistant director of the Interstate Commerce Commission, in a tentative report, said that the acquisition by the Rock Island of control of the Cotton Belt by purchase of the latter's capital stock was not in the public interest inasmuch as authority therefor could not be granted without taking into consideration its bearing upon the final consolidation of the railroads.

SOUTHERN.—*New Directors.*—Richard S. Reynolds, of Louisville, Ky., has been elected a director, succeeding John Kerr Branch, of Richmond, Va., resigned.

TENNESSEE CENTRAL.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to nominally issue $410,400 of first mortgage 6 per cent gold bonds.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—*Assumption of Liability.*—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability as lessee in respect of the bonds of the St. Louis Merchants Bridge Terminal and the St. Louis Merchants Bridge Company.

UNION POINT & WHITE PLAINS.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $104,000 as of June 30, 1916.

WADLEY SOUTHERN.—*Final Value.*—The Interstate Commerce Commission has found the final value for rate-making purposes of the property owned and used for common-carrier purposes to be $895,091, as of June 30, 1915.

Dividends Declared

Chicago & Western Indiana—One and one-half per cent, quarterly, payable October 6 to holders of record September 30.

International Railways of Central America—Preferred, 1¼ per cent, quarterly, payable November 16 to holders of record October 30.

Trend of Railway Stock and Bond Prices

	Oct. 13	Last Week	Last Year
Average price of 20 representative railway stocks	86.44	86.08	67.96
Average price of 20 representative railway bonds	91.43	91.61	87.91

Railway Officers

Executive

H. D. Pollard, general manager of the Central of Georgia, with headquarters at Savannah, Ga., has been given the title of vice-president and general manager, with the same headquarters, and the office of general manager has been abolished.

Financial, Legal and Accounting

A. K. Van Deventer, treasurer of the Southern Pacific, with headquarters at New York, will retire from active service on November 1 under the company's pension rule. **George M. Thornton,** assistant treasurer, with headquarters at New York, will succeed Mr. Van Deventer. **J. A. Simpson,** transfer agent, has been promoted to assistant treasurer, succeeding Mr. Thornton.

Henry J. Freeman has been appointed freight claim agent of the Pennsylvania, succeeding **R. L. Franklin,** deceased. **Albert P. Hickcox,** district freight claim agent at New York, has been appointed assistant freight claim agent to succeed Mr. Freeman. **A. D. Forman,** chief clerk in the freight claim department at Philadelphia, has been appointed district freight claim agent in New York City, to succeed Mr. Hickcox.

C. J. Hellerstedt, who has been appointed treasurer of the Southern Pacific of Mexico, with headquarters at Tucson, Ariz., is a graduate of the law school of George Washington University, Washington, D. C. He was in government service for some years and was later chief clerk to the superintendent of the El Paso Union passenger depot, El Paso, Tex. Mr. Hellerstedt has been connected with the Southern Pacific of Mexico since 1916. He was appointed assistant secretary of the railway and secretary of the East Coast Oil Company, a subsidiary of the Southern Pacific, in 1917. He will continue to hold those positions in addition to that of treasurer.

Operating

D. J. Hackett has been appointed superintendent of the Chicago, Kalamazoo & Saginaw, succeeding **L. Sergeant,** who has retired.

R. B. Butler, acting superintendent of the Southern division of the St. Louis-San Francisco, with headquarters at Memphis, Tenn., has been appointed superintendent with the same headquarters, to succeed **C. H. Claiborne,** deceased.

J. F. McMullan has been appointed assistant superintendent of the Scioto division of the Norfolk & Western, with headquarters at Portsmouth, Ohio. **R. A. Nelson** has been appointed trainmaster of the Scioto division, with headquarters at Portsmouth, Ohio, succeeding Mr. McMullan.

J. W. Crane, assistant superintendent of the Saskatoon division of the Canadian National, has been appointed acting superintendent of the Prince Albert division, with headquarters at Prince Albert, Sask., succeeding **J. Irwin,** who has been granted a leave of absence on account of illness. **J. A. Rogers,** in conjunction with his other duties, has been appointed acting assistant superintendent of the Saskatoon division, with headquarters at Saskatoon, Sask., in place of Mr. Crane.

F. D. Davis has been appointed acting general superintendent of the Pennsylvania, at New York City, with jurisdiction over the New Jersey division, pending the recovery of **William B. Wood,** general superintendent, who was injured in an automobile accident on September 29. **L. K. Marr,** assistant superintendent of the New York division, has been appointed acting superintendent in Mr. Davis' place. The New Jersey general division embraces the New York, Trenton and Atlantic divisions.

F. E. Nicoles, superintendent of the Eastern division of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Eau Claire, Wis., has been appointed superintendent of the new Wisconsin division, which is a consolidation of the former Eastern and Northern Wisconsin divisions, with headquarters at Eau Claire. **C. D. Stockwell,** superintendent of the Northern Wisconsin division, with headquarters at Spooner, Wis., has been appointed assistant superintendent of the Wisconsin division, with headquarters at Eau Claire.

C. E. Ervin, general superintendent of the Mobile & Ohio, with headquarters at St. Louis, Mo., has been promoted to general manager, with the same headquarters and the position of general superintendent has been abolished. Mr. Ervin was born on July 26, 1880, at Turner, Kan., and was educated in the public schools of Kansas City, Kan. He entered railway service in June, 1897, as a messenger for the Atchison, Topeka & Santa Fe, and was promoted to yard clerk the same year. He served in that capacity until 1899, and then resigned to accept a position as clerk with the Southern, at Sheffield, Ala. He entered the maintenance department of the Southern at Sheffield in 1900, and in 1906 he was promoted to track supervisor. In 1911 he became assistant engineer of the Northern district of the same road, and, in 1912, was promoted to road master of the Atlanta division. In 1917 he was promoted to superintendent of the Atlanta division, and in 1920 he went to the Mobile & Ohio as general superintendent, which position he held at the time of his recent promotion to general manager.

C. E. Ervin

Frank Thomas Mahoney, whose promotion to superintendent of the Kansas City Terminal division of the Missouri Pacific, with headquarters at Kansas City, Mo., was announced in the *Railway Age* of October 3, was born on April 4, 1886, at Delaware, O. He entered railway service on June 1, 1900, as a messenger for the Cleveland, Cincinnati, Chicago & St. Louis at Delaware, O., and later held the positions of yardmaster, bill clerk, cashier, chief clerk and yardmaster at this point until 1912, when he was appointed yardmaster, with headquarters at Springfield, O. He held the latter position until 1913, when he was appointed chief clerk in the superintendent's office of the Missouri Pacific at Little Rock, Ark. A year later he became chief clerk in the terminal trainmaster's office at North Little Rock, and in 1915 was promoted to night yardmaster, which position he held until 1918, when he was made day yardmaster. In 1920 he was promoted to general yardmaster and in 1924 to terminal trainmaster, which position he held until his recent promotion.

F. T. Mahoney

J. J. O'Neil, general manager of the Chicago, St. Paul, Minneapolis & Omaha, who has retired, was born on September 30, 1861, at Bridgeport, Conn., and entered railway service in 1878 as a brakeman on the Chicago, St. Paul, Minneapolis & Omaha. He continued in train service as fireman, conductor and engineer until 1899, when he was promoted to traveling engineer. Mr. O'Neil was promoted to assistant superintendent in 1905 and continued in that capacity until 1911, when he was promoted to division superintendent. He was promoted to superintendent of motive power and machinery in 1912 and in 1918 was promoted to general manager, in which position he remained until his retirement.

C. S. Cannon has been appointed assistant superintendent of the Florida division of the Seaboard Air Line, with headquarters at Tampa, Fla. **E. T. Gibson** has been appointed superintendent of the Florida division, with headquarters at Tampa, Fla., succeeding Mr. Cannon, transferred. **L. T. Foster** has been appointed superintendent of the East Carolina division, with headquarters at Charleston, S. C., succeeding Mr. Gibson, transferred. **H. M. Terrell** has been appointed trainmaster of the Virginia division, with headquarters at Raleigh, N. C., succeeding Mr. Foster, promoted. **J. S. Riggan** has been appointed assistant trainmaster, with headquarters at Norlina, N. C., succeeding Mr. Terrell, promoted. **D. S. Shepherd** has been appointed chief dispatcher, with headquarters at Raleigh, N. C., succeeding Mr. Riggan, promoted.

Traffic

G. H. Rudolph, general agent of the Erie, with headquarters at Birmingham, Ala., has been appointed general agent of the Chicago & Eastern Illinois, with the same headquarters.

Edward Stone, general agent, passenger department of the Canadian Pacific, with headquarters at Shanghai, China, has been promoted to general passenger agent for the Orient, with headquarters at Hong Kong, China, succeeding E. F. L. Sturdee, transferred.

William Fitzgerald, who has been promoted to general freight agent of the Chesapeake & Ohio, with headquarters at Richmond, Va., was born on March 25, 1872, at St. Louis, Mo. He entered railway service in 1887 as a stenographer in the office of the general superintendent of the St. Louis, Iron Mountain & Southern (now Missouri Pacific) at St. Louis, Mo. He was employed in that capacity by the Atchison, Topeka & Santa Fe and the St. Louis-San Francisco at St. Louis, Mo., until 1889, when he was appointed contracting freight agent for the Atchison, Topeka & Santa Fe. In 1901 he entered the service of the St. Louis, Keokuk & Northwestern (Chicago, Burlington & Quincy) at St. Louis, and remained in their employ for about 15 years, serving as contracting freight agent, chief clerk in the general freight department, general agent at Dallas, Tex., division freight agent at Hannibal, Mo., and assistant general freight agent at St. Joseph, Mo. In 1906 he was appointed general freight agent of the Chicago, St. Louis & Louisville, and remained with that company in that capacity until it was acquired by the Chesapeake & Ohio in July, 1910, when he was appointed assistant general freight agent of the Chesapeake & Ohio of Indiana, with headquarters at Chicago. He has remained with the Chesapeake & Ohio as assistant general freight agent at Chicago, Ill., or at Richmond, Va., until his recent promotion, with the exception of the period from March 1, 1921, to April 1, 1922, when he was connected with the Fort Dearborn Coal Company at Chicago, Ill., as vice-president and sales manager.

Mechanical

F. M. Darden, assistant car foreman of the St. Louis-San Francisco, with headquarters at Springfield, Mo., has been appointed general car foreman of the west freight shop, with the same headquarters, to succeed **G. W. Thomas,** resigned.

Obituary

C. E. James, president of the Tennessee, Alabama & Georgia, with headquarters at Chattanooga, Tenn., died in that city on October 2.